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ABSTRACT

This report details the history and characteristics of the Health Start program, explains the evaluation design and methodological problems in the study, describes the background and health characteristics of approximately 10,000 children enrolled in the program, and delineates the conclusions and recommendations emerging from the evaluation. Data was collected in order to answer the following two questions: (1) How can health services for low-income children best be coordinated?, and (2) What are some innovative ways to provide education, health detection, treatments, and entry into an on-going program that could be adopted by summer and full-year Head Start programs? Because of the program design and the many community, project and health service variables at work, only tentative conclusions could be reached about the factors affecting project success. Much was learned, however, about the health care needs of poor children from birth to six years of age. The evaluation did yield enough data on project approaches so that program models can be developed which may be adopted in the Head Start program. Health Start did provide health services to 20,000 children. (CS)

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AN URBAN INSTITUTE PAPER

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by
Leonia M. Vogt
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HEALTH START: Final Report of the Evaluation of the Second Year Program

by
Leona M. Vogt
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ABSTRACT

The final report of the Health Start evaluation of the second year (1972-73) is organized in three separate documents. This paper presents a detailed description and analysis of the Health Start program and extensive health data on approximately 10,000 children enrolled in the program. It also provides conclusions and recommendations for Head Start and other child health programs.

Health Start: Summary of the Evaluation of the Second Year Program (U.I. Agency Report 964-5) is available on request from The Urban Institute. It consists of an overview of the evaluation findings and results and summary of conclusions and recommendations. It also presents answers to the research questions posed for the evaluators by the Office of Child Development. The Urban Institute's Health Start Analysis Plan for the Second Program Year (U.I. Working Paper 964-2) which includes the evaluation and data collection instrument also is available on request from the Institute.

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This report represents the culmination of the two year evaluation of the Health Start program by The Urban Institute staff. In many ways, however, it was a cooperative effort of many individuals who performed various tasks which were important to the evaluation of the Health Start program.

First, we would like to express our gratitude to the Health Start coordinators without whom we would not have had data to evaluate the program. They and the other members of their grantee agencies were most cooperative in providing the volume of information needed to conduct the evaluation.

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CHAPTER I

OVERVIEW OF REPORT AND SUMMARY OF MAJOR FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

A. Introduction

In July 1971, The Urban Institute began the evaluation of the Health Start program under a grant from the Office of Child Development (OCD) in HEW. Over the course of the two years, the Institute prepared four technical and two non-technical reports for OCD.[1] This report is in some ways the evaluation of the two-year experience because Health Start in the second year differed little from the first year program and many of the tentative conclusions made in the first year evaluation were either confirmed or expanded in this evaluation report.

This report details the history and characteristics of the Health Start program, explains the evaluation design and methodological problems in the study, describes the background and health characteristics of the children, and delineates the conclusions and recommendations emerging from the evaluation.

B. OCD Research Questions

At the beginning of each Health Start year, OCD posed research questions about Health Start for the evaluators to answer. In each program year, the

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1. The Urban Institute papers and reports prepared as a part of the Health Start evaluation are: Joe N. Nay, et al., Health Start: Interim Analysis and Report, January 3, 1972; Nancy Perlman, Health Start: Profiles of Selected Projects, April 1972; Leona M. Vogt and Joseph S. Wholey, Health Start: Final Report of the Evaluation of the First Year Program, September 1972; Garth N. Buchanan and Leona M. Vogt, Health Start Analysis Plan for the Second Program Year, August 1972; Leona M. Vogt, et al., Health Start: Year Two Interim Status Report, December 1972; and Jean Lawlor and Katryna J. Regan, Health Start Profiles - Year Two, May 1973.

Institute developed evaluation instruments to collect data in order to answer the questions. The two major groups of questions for the 1972-73 evaluation were the following:[1]

(1) How can health services for low-income children best be coordinated? How feasible is coordination of federal, state and local resources to meet the children's needs for detection, treatment, entry into an on-going health care system, and health education?

(2) What are some innovative ways to provide health detection, treatment, entry into an on-going program and education that could be adopted by summer and full-year Head Start programs? What new ways to provide these services are relatively inexpensive, work well and offer promise of reproducibility? What examples of experimental approaches developed by Health Start can be recommended for wider adoption in child programs?

These questions were followed by a series of sub-questions, some of which dealt with project performance in meeting the program goals.

Because of the program design, the extent to which the evaluation could yield information to answer the impact questions was limited. Health Start was not designed to test systematically various approaches to delivery of health care through use of project models. Therefore, because of the many community, project and health service variables at work, only tentative conclusions could be reached about the factors affecting project success in reaching the program goals. If in the second year of Health Start or in a renewed third year OCD had tested particular hypotheses and imposed some structured design on the Health Start projects, there might have been greater informational benefits from the program.

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1. The complete list of research questions appears in Chapter II on pp. II-5 through II-7.

C. Answers to OCD Research Questions

1. Coordination of Resources

The major OCD questions about coordination of resources dealt with best approaches to, and feasibility of, service coordination. HEW agencies and Health Start projects expended various amounts of effort negotiating for health care services and funding. But the only true measures of the feasibility of coordinating health resources are the number of projects reporting use of HEW and other resources, the number of services paid by other agencies, and the value of the services used.

Therefore, the OCD questions and their sub-questions have been translated into measurable terms in order to answer them more precisely. Each question will be stated, then followed by as definitive an answer as possible, given the quality of the relevant Health Start data.

Question: How many projects reported using other resources for detection of health problems? for treatment of children? for health education?

Projects varied greatly in the amount of screening services that they secured at no cost to Health Start. Of the 26 projects reporting coordination data (out of a total of 30 projects), 20 projects received some coordinated services for detection of health problems. Three of the projects reporting no use of outside resources contracted for a year's health care for the children enrolled and paid for all care except immunizations.

Projects reported, but often did not submit estimates of value for two types of donated services--treatment of health problems and health education. Twenty projects reported using other resources for treatment of Health Start children--primarily for medical care. Because most projects gave little emphasis to health education, few reported using other resources for health education or staff instruction.

Question: What percent of each type of screening and treatment service was paid by an agency other than Health Start?

A high percentage of the tests given were provided through some other public agency or private resource. However, because the services were not of equal value,[1] the total reported value of the coordinated services that can be estimated was not high.[2] Three of the more expensive services--medical screening, dental screening and dental treatment--were usually paid by Health Start funds. Although precise cost data were not available, most of the costly medical treatments, like heart surgery, were financed by other agencies.

Question: Were particular programs--like Title XIX - Medicaid and Title V - Maternal and Child Health--used by Health Start projects?

Only two projects had children who were ineligible for or not enrolled in the Medicaid program. The rest of the projects theoretically could have used Medicaid to pay for some of the health services; however, only 10 of the 30 projects did so. One reason for this limited use was that most states had not implemented the Medicaid Early Periodic Screening, Diagnosis, and Treatment (EPSDT) regulations early enough in the Health Start year. Therefore, most services for which providers could be reimbursed involved follow-up treatment.

Eighteen projects made early efforts to reach an agreement with the state Medicaid agency over use of EPSDT; yet no Health Start projects negotiated early agreements. Over the course of the year, all except nine projects discussed EPSDT with state Medicaid agencies. Two projects reported using EPSDT for a limited number of health services, and one Health Start project staff secured an EPSDT provider number from a state Medicaid agency.

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1. See Chapter VII for estimated costs of health services. The estimated average cost, for example, of a blood test ($2.50) is low relative to the estimated value of a dental exam ($11.50).

2. For every OCD grant dollar, Health Start projects generated 20 cents in coordinated services.

The Maternal and Child Health program (MCH) used most extensively was the State Formula Grant program,[1] which provided immunizations, hearing, vision and some dental screening, training workshops and nutrition counseling. Of the 19 projects using the Maternal and Child Health program, one had to negotiate for new MCH State Formula Grant services, while the others already had access to the MCH services because of previous arrangements with the local Head Start project or because the services were readily available.

Not as many projects used the Crippled Children's program as used the MCH state formula grant resources (13); yet more projects reported having access to Crippled Children's services (whether they used them or not) than services provided through MCH. The other major federally funded MCH programs --project grants for Children and Youth, Special Dental Projects for Children, and Maternity and Infant Care--rarely were used, primarily because they were not located near Health Start projects.

Question: Were HEW and other agencies used by Health Start able to absorb the additional patient load without excluding other individuals?

Data from the local HEW agency interviews did not reveal that the added case load resulting from Health Start had great detrimental effects--in terms of reducing the number of patients served or the range of the services offered. Several local public health departments reported being understaffed and, therefore, could not offer more than immunization clinics. Projects reported that state Crippled Children's agencies were short of funds which limited their services. However, because most public health agencies take patients on a "first-come" basis, few agency personnel could predict what the impact of Health Start would be on their agency service.

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1. Title V maternal and child health services, a program of matching grants to states.

Of the seven projects that used Community Mental Health Centers, three paid fees for services given to the Health Start children. Because of their own funding problems, these agencies seldom offered free services to Health Start children. In other words, Health Start grant resources were "coordinated" (used) by these agencies.

2. Project Performance in Meeting the Health Start Goals

Question: Did the projects enroll the number of children they planned to enroll?

Health Start projects identified in their proposals the number of children they intended to enroll. Most of the projects (20) reached 90 percent (or greater) of their enrollment target. Four projects enrolled less than 50 percent of the number of children they planned to serve, and three enrolled substantially more than planned. The size of projects ranged from 88 to 864 children,with the median project having 280 children.

Question: What percent of the children had their immunizations brought up to date by Health Start?

Nineteen percent of the children entered Health Start with their immunizations up to date. An additional 35 percent were on schedule at the end of the program year. Forty-six percent needed additional immunizations or had unknown status. Two projects "completed" less than 10 percent of the children, and one project provided all the needed immunizations for over 90 percent of the children enrolled.

Question: What percent of the children were tested and what types of health problems were identified?

The average enrolled child received 4.4 of the seven required tests and 0.8 optional tests. Nine percent of the Health Start children received no required tests and 20 percent received all seven. Forty percent received

no optional tests and 20 percent received at least two optional tests. Seventy-four percent of the children across all projects got a medical exam and 61 percent of the children considered old enough for dental screening received a dental exam.

The most common health problem among Health Start children was dental disease: slightly over half of the children receiving dental exams needed some type of restorative work. Predictably, almost all of these children were over three years of age. Twenty-seven percent of the children receiving a medical exam were found to need medical treatment.

The five most common medical problems detected in Health Start children were: (1) nutritional deficiencies (5 percent of tested), (2) acute upper respiratory diseases (4 percent), (3) ear diseases or infections (3 percent), (4) skin disorders (3 percent) and (5) various types of hernias (2 percent). Recent data on a sample of Head Start children[1] indicate that Head Start children share similar types of medical problems (if one considers the results of all screening tests). Of the five most frequently occurring problems reported for Head Start children--skin, vision, speech, tonsils and adenoids, and malnutrition--all but one (tonsils and adenoids) were the same as the most frequent problems in Health Start.

A wide variation existed across projects on the percent of children found to need some type of health care. For example, four projects found less than 5 percent of the children receiving a medical exam needing treatment, while

1. Data are for Head Start children in one OCD region and represent children in four states (Arkansas, New Mexico, Oklahoma and Texas). Source: Summary Data for Phase II of the Head Start Health Planning Assessment Report, (prepared by Region VI Health Liaison Specialist for reporting to American Academy of Pediatrics).

five projects found more than 50 percent of the children tested needing medical treatment. A wider variation existed in the dental area. Of the children receiving dental exams, two projects found dental disease (needing care) in less than 10 percent of the children and five projects found dental problems in more than 95 percent of the children.

Question: What percent of the children tested and found to need treatment actually completed treatment?

As with other project characteristics, Health Start projects varied greatly in completing treatment for the health problems detected. Data show that two projects completed no treatment, while another completed treatment for all the problems found. Approximately 80 percent of the children needing dental treatment completed it before leaving Health Start. Fifty-three percent of the children who were tested and needed medical treatment completed their medical work and an additional 21 percent with medical problems requiring continuing care had arrangements made for on-going care or surveillance.

Question: How was health education provided to children, parents and staff? What was the content of the health education program? What did staff, parents and children learn about health? How was the health education knowledge put to use?

Some health education was given in the homes, some in day care centers, some at evening sessions, and a great deal of what was called "health education" was given to the children and parents on the way to a physician's office, or while in the waiting room. One project set up no health education encounters, while another had encounters for 98 percent of its parents and children. Over all, 55 percent of the children and 64 percent of the parents received some form of health education instruction. The average number of encounters was 1.3 for children and 1.6 for parents. One project held an

average of over five health education sessions for both parents and children. Eight coordinators developed promising health education programs, however, the other 22 projects invested little time in developing their components and consequently little health education took place.

Few projects reported planning extensive training sessions for staff. One regional office conducted, as in the first year Health Start program, a dental workshop for the Health Start staffs in the region. Other projects reported staffs were trained by state agency personnel in such areas as nutrition. Several Health Start staffs benefited from local Head Start training programs.

Almost all projects covered such basic topics as toothbrushing, some tailored specific instruction to local health needs, and about half included consumer health education for parents. No conclusions could be reached about what staff, parents and children learned from the health education component. Because of the small amount of health education given Health Start children and their parents, the Institute's plan to conduct a survey of the Health Start parents near the end of the 1972-73 program to determine the impact of health education on children was dropped.

Question: How many children entered an on-going prevention/treatment health delivery system as the result of Health Start? How will their future care be funded?

For future care, Health Start linked 28 percent of the children to the same medical services used during the program year and 31 percent to the same dental services. The remaining children would receive "unknown" care or would continue using the sources they had used prior to Health Start.

Medicaid would provide funds for medical care for 20 percent of the Health Start children and for dental care for 16 percent. Some other Health

Starters planned to utilize migrant funds, health insurance, or other sources. Funds for future medical care were either unreported, not known, or non-existent for 70 percent of the Health Start children and funds for future dental care were either unreported, not known, or non-existent for 77 percent of the children.

3. Relationship of Project Results to Community Characteristics

Question: How are Health Start project results related to community characteristics?

For the purpose of this analysis, Health Start projects were divided into four groups: urban, rural, mixed (urban and rural) and migrant.

Generally, urban and migrant projects did worse on most measures than did other types of projects with two exceptions: (1) urban projects gave more tests per child, and (2) migrant projects found the highest proportion of health problems in the children tested. Urban and migrant projects completed treatments for a smaller percent of those children needing treatment than did the other projects. Three of the six urban projects completed less than 50 percent of treatment needed while less than one-fourth of all other projects completed less than 50 percent of needed treatment.

In general, migrant children received fewer services than did other Health Start children. Migrant projects had generally below average performance and tended to have low per-child expenditures. Migrants were much less likely to be eligible for Medicaid and less likely to have had previous medical or dental care. They received fewer tests, even though in two of the three migrant projects the average number of abnormal conditions per test was very high. The reported future health care status of migrants was considerably worse than for other children.

4. Relationship of Project Results to Pre-Existing Medical Services

Question: How are Health Start project results related to pre-existing medical services?

The amount of health care resources available (as measured by the number of physicians per thousand people in the community)[1] did not have a detectable influence on project performance. The distributions of performance among projects with high, medium, and low amounts of health resources in the community were not markedly different. However, it is of interest to note one anomalous situation: the three projects with the fewest completed treatments, both per enrolled child and per treatment needed, all were in communities with a high number of health resources, while on the other extreme, the project with the highest number of treatments completed per enrolled child had only one active physician in the community. Thus, one can conclude that the presence of an abundance of health resources does not guarantee good project performance, nor does a paucity of resources inevitably lead to poor performance.

5. Relationship of Health Start Project Results and Project Characteristics

Question: How are the Health Start project results related to project characteristics?

Some project characteristics seemed to be related slightly to project success:[2] having no delays in project start-up, having experienced health coordinators, being experienced Health Start projects, conducting multiphasic screening and doing relatively high number of staff-administered screenings.

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1. Distribution of Physicians in U.S. 1971, American Medical Association, Center for Research and Development, Chicago, 1972.

2. Project performance was measured by the amount of health services given (including health education) and the extent to which future care arrangements were made. See page VI-16 for complete list of output measures used.

High project peformance was related to nurse-coordinators, higher per child grant expenditures, high rates of staff time per child enrolled, and relatively small numbers of children enrolled.

6. What innovative (effective) approaches to health services delivery have been developed that could be used by summer or full-year Head Starts?

Definitive guidelines for assuring effective approaches to health service delivery could not be derived (with high confidence) because of the program design. However, the evaluation produced data on cost estimates for various components, prevalence of health problems, and availability of services, as well as the effects of some project characteristics on project performance. Thus, while tested models of innovative approaches cannot be advanced, a sufficient data base has been developed and presented to support OCD in planning health components for summer and full year Head Starts.

D. Major Conclusions and Recommendations

1. Coordination of Resources

Health Start reinforced the hypotheses that it is difficult, if not impossible, to change existing institutions (even temporarily) without mandating or legislating change. As Dr. Charles Gershenson, former Director of Research for the Children's Bureau, stated about federal agency efforts like coordination:

> The approach has been primarily magical combined with a strong wish-fulfillment phantasy. For the most part these terms [coordination, service integration, and unification] are not defined nor their implications fully thought through. There has been almost total reliance upon empiricism without any attempt to translate social science and administrative science concepts and theory. The approach is mechanistic while at the core is a culture which promotes individualism and competitiveness which are antithesis to altruism and communal activities and rewards. For the most part the various coordination schemes are some form of power centralization and the struggle is between those who must part with power and those who gain in the exchange.[1]

1. Charles Gershenson, Ph.D., "Identification of High Priority Topics for Research in MCH," Report of the National Conference on Research in Maternal and Child Health, University of California School of Public Health, Berkeley: May 1973.

Health Start experience with "coordination" confirmed the Gershenson theory in that: (1) there was no clear definition of the functional meaning of coordination or apparent understanding of how it was to be accomplished, (2) there were no incentives for HEW agencies to work together, and (3) there was no clear understanding of the locus of responsibility for the effort. Therefore, in only one instance, when HEW national and regional staffs worked together and with a Health Start project coordinator, did any tangible results occur (in terms of functional changes of agencies and programs). That one case involved the negotiation of a Medicaid Early Periodic Screening, Diagnosis and Treatment (EPSDT) contract between the state Medicaid agency and a Health Start agency. The rest of the activity termed "coordination" involved (1) some discussions and meetings of various HEW staffs and (2) some negotiations of Health Start projects with numerous agencies (some federal, but primarily state and local) for specific health services.

The results amounted to Health Start agreements with individual agencies for particular types of service for all or some of the children, or less frequently, a regimen of services for all the Health Start children. Only in a few cases did agencies change the delivery or the amount of care that they provided to other pre-school economically disadvantaged children. Consequently, it seems that Health Start projects were advocates for the Health Start children entrusted to them but not for the great numbers of poor children in that same age group who need health care. Health Start's coordination efforts proved fallacious the theory that there are vast potential health resources for children waiting to be tapped.[1]

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1. The one exception could be Medicaid's EPSDT program. However, it could only benefit one-third of the Health Start population--those eligible for Medicaid benefits.

Because the ability to coordinate is somewhat dependent on what exists in the community, it is difficult to predict the feasibility of a local Head Start successfully "coordinating" (using) health resources. However, Medicaid funds should be generally available to children eligible for Title XIX benefits. Therefore, Head Start projects should use Medicaid to the extent possible.

Securing a Medicaid-EPSDT provider number for several projects could be easier than obtaining an EPSDT contract for a single Head Start. Therefore, regional Offices of Child Development (possibly the AAP Health Liaison Specialists) should work with state Medicaid agency staffs to secure EPSDT contracts for several Head Start projects. If Head Starts cannot negotiate successfully an EPSDT contract, then they should refer whenever possible Medicaid children to local EPSDT providers in order to take advantage of the Medicaid program and reduce the cost of their health components.

2. Detecting Children Needing Health Care

Health Start data show that the following tests should be given first to find the children most likely to need care. especially if funds are limited:

a. Priorities in Screening

- Because blood tests are relatively inexpensive and seem to predict serious health problems they should be given first (along with immunizations). Since hematocrits are more precise tests,[1] they should be given instead of hemoglobin tests (if only one blood test is given).

1. The disadvantage of using hemoglobin level as an approach to nutritional anemia is the difficulty in identifyint the abnormal state when the normal cannot be clearly defined. See C.A. Finch, M.D., "Criteria for Evaluation of the Status of Iron Nutrition," Extent and Meaning of Iron Deficiency in the U.S., National Academy of Sciences, Washington, D.C., 1971.

- Because over 50 percent of the Health Start children over three years of age need dental treatment, dental screening could be elminated. Instead, all children could be sent to the dentist for fluoride and curative treatment. (Because of the dramatic effects of fluoride on the dental health status, the least expensive types of preventive treatment is fluoride.)

b. Priorities of Children to be Screened

- Children who have had recent medical care (especially crisis care). They tend to need medical treatment.

- Young children (under three) who are small for their age. They have twice the number of ailments as young children of normal size.

- Children who have abnormal blood readings. They tend to have serious medical conditions.

- Children who are not exposed to fluoridated water. They had a substantially higher number of dental caries repaired and extractions (a measure of the incidents of dental problems).

3. Measurement Problems in Screening Program

In six of the eight required tests, the variability among projects in referral rates was more than one would expect to find due to the true variability of health status among children.

Even though the Health Start evaluation was not to include an assessment of the quality of the care given in the program, the variability across projects in costs and in detection and treatment rates points to a need for further study to design a low cost/high yield health screening program for children.

4. Cost of Program

Data on Health Start cost and prevalence of health problems reveal that if all required tests and screenings were given to a group of 100-200 children (from birth to six years of age) and all needed treatment were completed, it would cost an estimated $200 a child. If the same overall amount of donated services were received as in Health Start, the cost of serving the same age group would be $113 a child. If only children over three years old were served, the total cost of providing them with Health Start-like services would be $219 a child ($129 a child with "coordination").

Cost data similar to those presented in this report could be used in the Head Start program not only for Congressional budget requests but also in reviewing project proposals and budgets. If OCD required Head Start grantees to prepare budget justifications for estimated health services costs (including those expected to be incurred by some other agency), Head Start projects probably would be more successful in planning and budgeting for their health service components than were Health Start projects.

Health Start failed as a "demonstration" because of the nature of the program--no design, no expectations stated, no problems defined. Yet much was learned about the health care needs of poor children from birth to six years of age. The evaluation did yield enough data on project approaches so that program models can be developed which may be adopted in the Head Start program. As an operational program, Health Start did provide health services to 20,000 children.

CHAPTER II

OVERVIEW OF THE HEALTH START PROGRAM AND THE EVALUATION

A. The Health Start Program

1. Background

In the fall of 1970, Dr. Edward Zigler, then director of the Office of Child Development (OCD), addressed a meeting of the American Academy of Pediatrics (AAP). He identified as a high OCD priority the provision of health care to low-income pre-school children, already one of the goals of the Head Start program. He proposed the establishment of a demonstration program similar to Head Start that would develop new techniques for health service delivery and provide health care for a larger number of children than served in Head Start.

On January 22, 1971, OCD planners met for the first time to consider an operational strategy. Within the next month, more meetings helped to formalize the plans for a small national program,[1] and by mid-February, the OCD Assistant Regional Directors (ARDs) received the Health Start guidelines. Each regional office was expected to assign a staff member the responsibility for regional Health Start planning, site selection and project monitoring. The regions had three and one-half months to develop plans and to solicit, review, and submit proposals to the national office. By early May 1971 most of the 29 project sites had been selected. By late

1. The 1971-72 national Health Start budget was $1,205,200 (which included $251,000 from the Region VI Head Start monies), and the 1972-73 budget was $1,376,183 (which included a larger commitment of Region VI and additional money from the Indian and Migrant Program Division).

June, some projects had hired their staffs, sent coordinators to a training conference in Washington, D.C. and begun operations.

Health Start served approximately 20,000 children over two years--10,010 from June 1971 to June 1972 and 9,835 from June 1972 to June 1973.[1] The first year program operated at 29 sites and then in the second year program at 30 different sites across a total of 28 states and Puerto Rico. Health Starts were located in cities, in isolated rural sections, and in areas covering both a city and its surrounding areas.

Usually Health Start projects were located in Head Start communities and were, in some cases, indistinguishable from the Head Start program. However, most projects took advantage of guideline flexibility. For example, they chose to serve children from birth to school age or only three, four and five year olds, to operate temporary clinics or schedule individual appointments with physicians and dentists, or merely to add a health care component to existing day care centers. Their target areas were as limited in scope as a New Mexico logging camp and as broad as 10 Oregon counties.

Because the 1971-72 program was completely decentralized,[2] program responsibility fell only on those working at the project level. In both program years, each Health Start project was to have a "health coordinator" hired for a full year to oversee the administrative duties and to ensure that the children received needed care. In some cases, if the coordinator was a nurse, he or she also provided some of the health services.

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1. The national goal for the 1971-72 program was to serve 10,000 children, and the expected number to be enrolled in the 1972-73 program year was 12,240, at planned per child costs of $120 and $114 respectively.

2. The administrative structure for the 1971-72 Health Start program was weak with no real accountability at the project level, the regional level, or even at the national level.

The 1971-72 program had no national director, and except for help from the AAP consultants assigned to the program, the first year projects received little technical assistance in the development and operations of their programs. Because of the obvious need for program direction, especially in such a demonstration effort, a national Health Start director was appointed for the 1972-73 program.

The 1972-73 Health Start program differed little from the first year effort. However, planning for the 1972-73 program resulted in the following changes or additions: (1) the appointment of a national director, (2) more precisely stated guideline requirements, (3) exclusion of children previously enrolled in Health Start or Head Start, and (4) greater involvement of other HEW agencies in the planning and operation of the program.

2. General Requirements

Health Start projects were to carry out the following national objectives: (a) "coordination" (utilization) of HEW and other existing health resources, (b) provision of health care to children enrolled, and (c) development of new techniques to deliver that health care. Each Health Start child was to receive a minimum regimen of health services to include:

"...Detection Program of Required Services: Detection services must include screening linked with subsequent diagnostic assessment. Minimum detection services required are:

1. Medical and developmental history
2. Determination of immunizations needed
3. Physical screening
4. Laboratory screening through hematocrit or hemoglobin determination and urinalysis
5. Vision and hearing screening
6. Preliminary dental screening to establish priorities for treatment"

"...Treatment Program Linked to Detection Process: An organized treatment program must include:

1. Treatment of all health problems detected
2. Providing needed immunizations
3. Basic dental care services defined as follows:

   a. Diagnostic examination including x-rays necessary to complete needed treatment
   b. Dental prophylaxis and instruction in self care oral hygiene procedures
   c. Topical fluoride application
   d. Restoration of carious (decayed) teeth with silver amalgam, silicate cement, plastic materials, and stainless steel crowns where indicated, with careful consideration for the health of the dental pulp.
   e. Extraction of nonrestorable teeth and other services required for the relief of pain and infection."[1]

Projects could also include--for some or all of the children--additional tests for such conditions as sickle cell anemia, lead poisoning, strep throat. Besides ensuring that each child receive all needed health care during the program year, Health Start projects were expected to provide health education to parents and children and to make arrangements for continuing care for as many Health Start children as possible.

3. Coordination of Resources

The guidelines for both Health Start program years called for "coordination" of HEW and other resources. This term, used extensively in the Department of Health, Education and Welfare, implies action to reduce the fragmentation of federally sponsored health care programs. Health Start called for HEW action--cooperation and collaboration of three HEW agencies:

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1. See Appendix A for 1972-73 Health Start guidelines.

the Office of Child Development (OCD), Social and Rehabilitation Services (SRS), and Maternal and Child Health (MCH)--at both the national and regional office levels. The hope was that Health Start could demonstrate that HEW agencies by working together could improve federal child health care delivery. Health Start projects were expected to use various HEW and other resources in order to minimize the cost to OCD of providing health services to the children enrolled.

B. The Health Start Evaluation

1. OCD Research Questions

At the beginning of each Health Start program year, OCD posed a set of research questions to be addressed by the evaluators. In the first program year (1971-72), The Urban Institute developed a reporting system and monitored the Health Start projects in order to collect data for responding to the OCD questions about project performance. OCD formulated another set of questions (similar to the first year questions) for the second year evaluation. They appeared in the 1972-73 Health Start guidelines and included two major questions and numerous sub-questions.

(1) How can health services for low-income children best be coordinated? How feasible is coordination of federal, state and local resources to meet the children's needs for detection, treatment, entry into an on-going health care system, and health education?

(2) What are some innovative ways to provide health detection, treatment, entry into an on-going program and education that could be adopted by summer and full-year Head Start programs? What new ways to provide these services are relatively inexpensive, work well and offer promise of reproducibility? What examples of experimental approaches developed by Health Start can be recommended for wider adoption in child programs?

Some of the sub-questions, which were to be addressed in the evaluation, are listed below:

(1) Is a service coordination approach feasible in delivering services for children? This effort will evaluate the use of Title XIX and other resources, including (but not limited to) such questions as the following:

(a) In what ways were services coordinated in areas with many and few resources (as defined by OCD)?

(b) How was this coordination brought about?

(c) What was the anticipated and actual support obtained through coordination? How much was required in direct payments to provide what service to how many children? Under what circumstances was service coordination most effective? What approaches worked best in areas with many and few resources?

(d) What resources existed in areas to be served? What new agreements were reached?

(e) Were there any "trade-offs" in providing service through Health Start that meant reduction in number of children reached or level of care ordinarily provided by cooperating agencies?

(2) Could the existing agencies absorb the extra load (Health Start) or were Health Start children served in lieu other possible recipients?

(3) How effectively did the projects meet the Health Start goals, including:

(a) Number of children registered for specific activities initiated by the program.

(b) Number of children served, type of health problem identified and treatment provided.

(c) The success of the health education component.

- How was health education provided to children, parents and staff?
- What was the content of the health education program?
- What did staff, parents and children learn about health?
- How was the health education knowledge put to use?

(d) The success of the entry-into-an-ongoing delivery system component: how many children entered into an ongoing prevention/treatment health delivery system as a result of Health Start?

(4) How are Health Start project results related to community characteristics? to characteristics of pre-existing medical services? to project characteristics?

(5) What innovative approaches to health delivery have been developed that could be used by summer or full-year Head Starts?[1]

2. The Evaluation Design

The Urban Institute developed an analysis plan for the second year evaluation,[2] based on the OCD research questions and on the Health Start guidelines. The plan included extensive data collection from the Health Start projects, both through project reporting and through U.I. monitoring visits. Plans also called for interviewing HEW agency personnel at the national and regional offices, as well as some state health and welfare personnel, public and private health agency staffs in the Health Start communities, and local Head Start personnel.

Figure II-1 shows the major factors considered in evaluating the Health Start program: the characteristics of Health Start children, the communities, the projects; the role of the Office of Child Development in the design and operation of the program; the use of other agency resources in the Health Start program; and the attempts of projects to meet the program goals.

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1. See Appendix A.
2. See Garth N. Buchanan and Leona M. Vogt, Health Start Analysis Plan for Second Program Year, Working Paper 964-2, Washington, D.C., The Urban Institute, 1972.

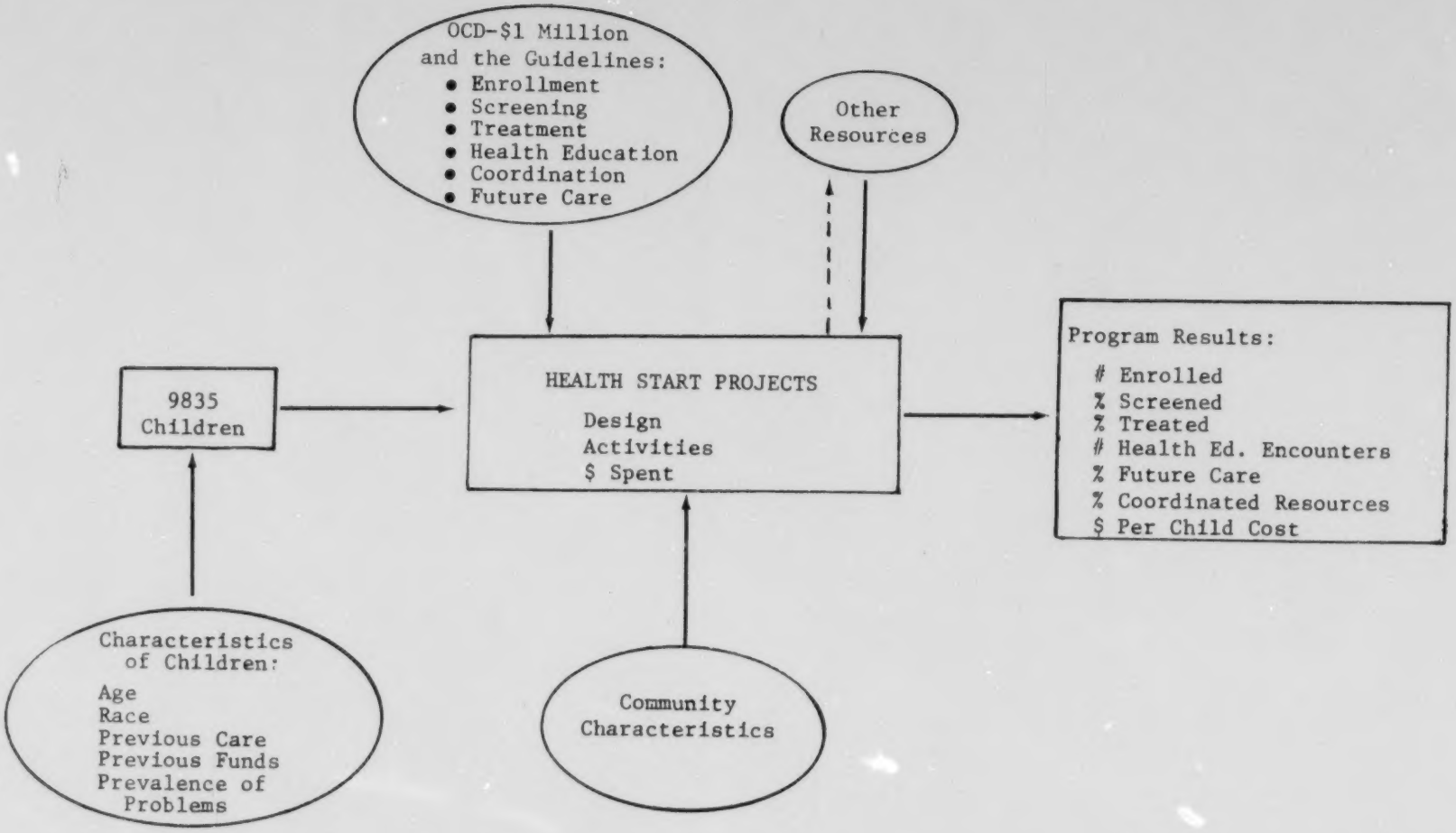

Figure II-1 - General Analysis Framework For Health Start Evaluation

Table II-1 presents a description of the main data sources used by the evaluators. As a major part of the data collection effort, The Urban Institute designed a Health Start information system to collect data from the Health Start projects. Because the Health Start coordinators were responsible for reporting data for the information system, The Urban Institute trained them in the use of the instruments at the beginning of each program year.[1] Throughout the second year, The Urban Institute made periodic checks to ensure that the reporting forms were being completed properly.

In addition to using the data to evaluate the effectiveness of various strategies and to determine the impact of the program, information from the monitoring visits was used to provide rapid feedback to OCD about: (1) project compliance with the program guidelines and grant conditions, (2) a project's managerial efficiency, and (3) the need for technical assistance.

3. Methodological Issues Related to the Evaluation of the Second-Year Health Start Program

This section of the report deals with methodological issues raised by the evaluation design of the second year Health Start program. The Urban Institute presented its analysis plan for the second year evaluation[2] (1972-73) to the Office of Child Development in October of 1972, and OCD reviewed and approved it at that time. This analysis plan translated the Health Start guidelines developed by OCD and policy-relevant questions (about the performance of Health Start) into research questions amenable

1. Several 1971-72 Health Start coordinators were consulted at the end of the first program year concerning revisions of the evaluation instruments. They were particularly helpful in suggesting changes to reduce reporting errors and to increase the usefulness of the reporting forms to the projects.

2. Garth N. Buchanan and Leona M. Vogt, Health Start Analysis Plan for Second Program Year, Working Paper 964-2, Washington, D.C., The Urban Institute, August 16, 1972.

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TABLE II-1

SUMMARY OF MAJOR DATA SOURCES

Major Data Source Used	Content	Reporting Mode	Comments
1971-72 Health Start Data and Urban Institute papers and reports on Health Start evaluation	Data, research findings, results on two years of Health Start	Six reports between January 1972 and May 1973	See Chapter I, page 1 for a listing of titles
HEW and OCD Documents	Health Start and EPSDT guidelines and national and regional correspondence	-	-
Health Start Planning Format	Project report on availability, accessibility and use of various HEW and other health resources	Data collected during site visits and in June 1973	Quality of data varied greatly from project to project
Compendium of HEW Resources	Prepared by U.I. staff to determine the HEW health resources available for children 0-6 years of age	-	This document was based on the HEW Secretary's Child Health Task Force, the U.S. Budget, & HEW interviews
Health Start Project Profiles	List of HEW resources potentially available at each project location	-	Prepared as follow-up to Compendium of HEW Resources
Health Start Expenditure Form	Detailed breakdown of project expenditures and amount of health resources coordinated	Submitted by projects to the Urban Institute in October 1972 and June 1973	Quality of data varied considerably. Few projects reports included the dollar value of coordinated resources
Health Start Quarterly Health Report	Per child data on background, health services, Medicaid eligibility and future care arrangements	Submitted quarterly by projects to the Urban Institute	Quality of data good. Primary data source for health services delivered by program
Health Start Field Collection Format	Detailed data on planning and operation of Health Start projects. Also included interviews with cooperating and non cooperating HEW agencies	Collected during two day site visits by U.I. staff, conducted early in program year	Extensive process data used to classify projects & communities and identify problems and promising approaches
HEW National and Regional Interviews	Extent of activities to assist projects in coordination of resources and constraints to coordinators	Personal interviews with nine national and 51 regional staff members	Number of regional interviews varied. The number depended on the extent of Health Start activity in the region
Telephone Survey on Medicaid	Reasons for Health Start children not being enrolled in Medicaid and project activities in relation to EPSDT	Conducted December 1972	-
Telephone Survey on Health Education	Questions related to project content and approach	Conducted in Spring 1973	Planned U.I. parent survey dropped because of findings
Questionnaire for Health Coordinators on Coordination Activities	Information on contacts and results of coordination efforts	Completed by coordinators at follow-up coordinators' conferences	Not all projects submitted the questionnaire
"Pie Charts"	Allocation of project staff time by activity	Completed by coordinators at follow-up coordinators' conferences	Not all projects submitted the questionnaire

to analysis. From this plan, The Urban Institute developed evaluation models to obtain information for answering these research questions. Since the approval of that plan, however, OCD made the final decision not to continue the Health Start program for a third year.[1] Consequently, the parts of that plan which were directed at detecting potentially successful procedures for testing in a third year of Health Start are now less important.

Given the current status of the Health Start program, it seems that the most useful evaluation results for OCD are findings about the prevalence of health problems in this population of children, the costs of detecting and treating those problems, and the amount of care that one could expect to be available at no cost to a program like Health Start. Such information could be useful to OCD and others for planning purposes in Head Start and day care programs and to other agencies for planning new programs to provide health services to similar populations of children. Furthermore, because of the characteristics of the 1972-73 Health Start program, it was not possible to identify successful procedures and approaches for the efficient delivery of health services that could be transferred with great confidence to other programs.

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1. In March 1973 The Urban Institute was asked by OCD to formulate some options for a third year Health Start program. In response to this request some optional designs for a planned variation demonstration and the rationale for conducting such a demonstration were developed in a memorandum to Helen Howerton, "Options for a Third Year Health Start," March 16, 1973.

The methodological issues addressed in this section relate to (1) the constraints imposed on the evaluation by the characteristics of the program and (2) the availability, reliability, and validity of data collected by The Urban Institute. An understanding of these issues is essential to appreciate the emphasis placed on incidence and cost information in the report and to interpret the findings presented in Chapters III through VIII.

a. Constraints on Evaluation Resulting from Program Characteristics

The characteristics of the program to be evaluated place constraints on the types of evaluation information one could obtain and/or the confidence one could expect to place in that information. As stated, the major purpose of the Health Start program was to identify successful techniques and approaches to ensure the delivery of health services to economically disadvantaged children under six years of age. The evaluator's ability to obtain these types of information, however, depended to a significant extent upon the design and operation of the Health Start program.

To demonstrate what is meant by "constraints," it is necessary to classify programs into three types: experiments, planned variations, or natural variations. An experiment involves (1) systematic variation of certain independent variables in order to estimate a response function, (2) randomization to control for variations in other unknown exogeneous variables, and (3) sufficient replications to ensure that particular accuracy and confidence requirements are met.

A planned variation "tests out" different well-defined treatments by setting them up as different projects. While a planned variation involves

replication, it does not necessarily involve systematic variation or randomization. Consequently, the confidence one has in the results of a planned variation may be less than one has in the results of an experiment. In a natural variation (the typical form of demonstration program), a problem area is identified, objectives are set, and "sponsors" are left to design appropriate projects to meet these objectives. This kind of program does not involve systematic variation or randomization. Because the models to be tested are left to the discretion of local sponsors, there is no assurance that any one treatment will occur naturally in enough situations to achieve sufficient replications of the models to allow confident estimates of relationships between inputs and outputs.

The 1971-72 Health Start program was based on a natural variation approach. Twenty-nine projects were involved, varying in grant size, number of children enrolled, staffing patterns, operational settings, amount of resources used, and success in terms of providing (or ensuring) the needed health care. As expected, there were very few procedures or strategies that were common to a large enough number of projects to allow the evaluation to establish relationships between these procedures and the success measures with any degree of statistical confidence. However, several hypotheses emerged from the evaluation that were worth testing in the second year.

For the 1972-73 program, The Urban Institute strongly urged that a planned variation approach be adopted so that some of the hypotheses detected in the first year of Health Start could be tested in the second year. With enough control and replication, it might have been possible

to determine if the procedures or strategies could be transferred with reasonable assurance of success to other programs offering health services to children. This advice was not accepted, and so the second year program, like the first, was a natural variation approach. A comparison of the 1971-72 and 1972-73 programs presented in the Year Two Interim Report[1] showed at that time that there was very little difference between the first and second year programs.

Because Health Start took the natural variation approach in 1972-73, and because there will be no 1973-74 Health Start program in which to further test hypotheses, this report places major emphasis on health problem incidence data and on estimates of the costs of providing services to this population of children. These incidence and cost data are particularly important and useful for Head Start and day care policy decision. Although there are observable relationships between project characteristics and measures of effectiveness,[2] in the light of program constraints, this type of analysis is less important--especially since there is no third year Health Start program planned, let alone a program run as a planned variation demonstration.

b. Presentation of Results

Four types of results are presented in this report: (1) coordination of resources, (2) delivery of health services, (3) characteristics of Health Start children, and (4) provision of health education. A brief explanation of what is involved in each of these analyses will be provided, followed by a discussion of the availability and quality of the data on which these analyses are based.

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1. Leona M. Vogt, et al, Health Start: Year Two Interim Status Report, Contract Report 964-3, Washington, D.C., The Urban Institute, December 20, 1972.
2. See Chapter VI for analysis of these relationships.

(1) Coordination of Resources

(a) Focus of the Analysis

The Health Start: Year Two Interim Status Report placed primary emphasis on analyzing coordination at the national, regional, and state levels. At that time, the projects had reported very little data about their success in making agreements with other agencies. Chapter III of this report, however, places primary emphasis on analyzing the local level success in obtaining coordinated resources. In addition, the analysis attempts to determine the degree to which efforts at the national, regional and state levels aided the local projects in securing commitment for funds or services from other agencies.

(b) Source and Quality of the Data

Data used for this analysis were obtained from National and Regional Interviews, from the Field Visit Reports, from the Planning Formats, and from the Health Start Expenditure Forms.[1] Other major data sources were The Urban Institute-prepared Compendium of HEW Resources[2] (a guide to funds and services theoretically available to all Health Start projects) and Health Start Project Profiles[3] (a listing of resources available for each Health Start community).

The national and regional HEW interviews and the Health Start Field Visit Reports provided information on problems, constraints, and/or successes of coordination at the local levels. The national, regional, and state level interviews provided data on both the amount of effort expended to coordinate different health service resources and on the feasibility of

1. See Health Start Analysis Plan for Second Program Year (Urban Institute Working Paper 964-2).
2. See Appendix E.
3. Ibid.

coordinating HEW (and other) resources in a program like Health Start. While these interviews were highly structured to ensure consistency, the reliability of the information obtained is very dependent upon the individuals who were available to be interviewed and their awareness of the distribution of various program funds at the local level. Extensive efforts were made to ensure, insofar as possible, that appropriate individuals would be available for interviews and that the questionnaire would facilitate later cross-checking of different individuals' interpretations of the same situation. Time and financial constraints, however, precluded any systematic attempts to obtain quantitative estimates of the reliability of these data.

In the Planning Formats, projects reported their ability to coordinate with the health service community, the constraints on coordination at the local level, and the changes in use of available community resources. These reporting forms gave apparently reliable information[1] about many different types of donated resources that projects were able to obtain from federal and state programs and from the local health service community.

The Health Start Expenditure Form was developed to capture the actual costs of an operation, including expenses incurred by other agencies which committed funds and services for Health Start children. However, as explained earlier, the reported costs associated with these services do not seem to be reliable in spite of the apparent validity of data on numbers served and services provided.

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1. The information on the Health Start Planning Formats was verified later by comparing it with data reported on the Health Start Expenditure Forms.

(2) Health Services Results

Data concerning the amount, type, cost, and variation of health services provided can be classified into three areas of analysis with three somewhat different purposes.

(a) Identifying Effectiveness

Whenever possible, health service data have been used to indicate the effectiveness of certain strategies and methods of operation. Chapter VI analyzes various project characteristics to determine which types of projects were most successful in achieving the Health Start program goals. Conclusions, however, are limited due to the number of uncontrolled project variables.

(b) Representative Sampling of a Population and Cost of Health Delivery

The children enrolled in Health Start can be considered a reasonably representative (and certainly a large) sample of economically disadvantaged children under the age of six. Moreover, Health Start program data can be considered reasonably representative not only of the larger Title XIX program, the Head Start and day care programs but also of the target population for other types of future health programs--including national health insurance--that the government might direct at this same population. In this light, Chapter VIII presents data on the prevalence of health problems in this population of children and Chapter VII, the amount it costs to screen, diagnose, and treat the array of health problems characteristic of these children. This kind of analysis attempts to make accurate estimates of the prevalence of various types of health problems in a population similar to Health Start's and of detection and treatment costs for economically disadvantaged pre-schoolers.

(c) The Problems of Variable Measurements

In the Health Start Interim Status Report[1] and in subsequent analyses of 1972-73 data, there is greater project variability in many measurements than can be reasonably attributed to true variance among children. Estimating the possible magnitude of this error variance is a third type of analysis and is important for interpreting the incidence and cost data. To identify the different possible sources of error variance, the delivery of health services can be viewed as a series of categorizations based on imperfect measurements. Different sources of error can be identified in the measurement process, and costs can be attached to those sources of measurement error. While all sources of variance cannot be factored out and costs cannot be attached to all error terms, some estimates of these sources of error are necessary in order to correctly interpret the incidence and cost data described in the report. Appendix F addresses the error variance found in the Health Start program.

c. Quality of the Health Services Data

The health service data were obtained primarily from the Health Start Quarterly Health Reports[2] and the Health Start Expenditure Forms.[3] The Quarterly Health Report data appear to be quite reliable as to the number of children served and the types of services provided. The coordinators were carefully trained in the use of these reporting forms, and constant checks were made throughout the year to ensure that the forms were being properly filled out. Also, because the forms were designed to assist the coordinators in managing their projects as well as to report health services

1. Leona M. Vogt, et al, Health Start: Year Two Interim Status Report, Contract Report 964-3, Washington, D.C., The Urban Institute, December 2, 1972.
2. See Health Start Analysis Plan for the Second Program Year (Urban Institute Working Paper 964-2).
3. Ibid.

given, this method of reporting was more valuable to the project and more reliable as a data source.[1]

The cost data from the Health Start Expenditure Forms on the other hand were less complete and suggest many more problems than data from the Quarterly Health Reports. In general, the reporting of Health Start grant expenditures seems to be reliable, but one problem was that the data were often incomplete. By the final reporting period, a few of the Health Start Expenditure Forms were still missing data for services given but not yet billed; consequently, grant expenditures might be somewhat underestimated. Also some projects did not separate screening costs from treatment costs; this reduced the validity of the more detailed cost analysis.

Moreover, there are several reasons for viewing the reported dollar value of services provided to Health Start children at no cost to OCD as unreliable. One reason is that project coordinators computed information about the costs of coordinated services only when filling out The Urban Institute forms. Also, because the agencies donating services did not always record these data in unit costs for their own management and accounting purposes, the information was difficult if not impossible to obtain. However, information on the number of children served by other agency funds and the types of services these children were provided is more reliable. Consequently, in the cost analysis, estimates of services received at no cost to OCD have been made based on the assumed value of various types of services.

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1. This opinion was confirmed by most of the coordinators who, at the time of The Urban Institute monitoring visits, reported that the Quarterly Health Reports enabled them to keep track of what they had done and what needed to be done.

(3) Health Education Information

(a) Focus of the Analysis

Originally, The Urban Institute intended to conduct a survey of the parents of Health Start children to determine how effective the educational program had been in providing needed health information. After making a telephone survey of health coordinators, The Urban Institute and the Office of Child Development realized that projects had conducted very little systematic health education and agreed that the information that could be obtained from such a survey was not worth the cost. Consequently, they abandoned the idea of a parent survey. Chapter VI presents primarily descriptive data on the extent to which projects met the guideline requirements and on primary approaches taken by eight Health Start projects. Appendix B describes why the parent health education survey was abandoned.

(b) Source and Quality of Data

The data for the health education part of the evaluation were obtained from the Field Visit Reports, a telephone survey, the Quarterly Health Reports, and the Health Start Expenditure Forms. The telephone survey, of course, has the same reliability drawbacks as found in the Field Visit Reports, but it occurred some months after the collection of the site-visit data. Consequently, some reliability checks have been made by comparing the results of these two data collection procedures. In addition, evaluators cross-checked the telephone survey with the Quarterly Health Reports and corrected data if the source of the deviation could be identified.

CHAPTER III

MEETING PROGRAM GOALS:
COORDINATION OF RESOURCES

A. The Requirements

The term "coordination" has special meaning for the Department of Health, Education, and Welfare. In terms of health it implies the cooperation and collaboration of agencies and programs in reducing the fragmentation of health services to individuals who need health care. Theoretically, this integration of health resources can take place at various levels: federal, regional, state, and local. Functionally, service coordination can come about through policy changes, through cooperating agreements made among agencies, by individuals acting as advocates for specific populations, or on an ad hoc basis to meet the health needs of particular persons.

In effect, these potential activities and participants were implied in the first and fourth objectives of the 1972-73 Health Start program guidelines.

> To demonstrate the feasibility of a service coordination approach to health care delivery for low income children in areas where health resources vary from few to none to many, . . . to develop new administrative mechanisms which will assure improved utilization of local, state, and federal resources in providing health services.[1]

The 1971-72 Health Start evaluation indicated that little activity took place in the first year at the national and regional HEW levels to change agency policies and procedures to improve service coordination or to aid projects in using various types of resources. Therefore, the

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1. See Appendix A.

1972-73 guidelines emphasized the need for a more formalized working relationship between Health Start and existing health resources, on-going collaboration to meet objectives, and the encouragement of joint planning and agreements for the use of funds and resources. Such inter-agency activity could include the headquarters and regional staffs of the Office of Child Development (OCD), the Health Services and Mental Health Administration (HSMHA) and the Social and Rehabilitation Services (SRS). In addition, the guidelines encouraged local projects to maximize use of resources such as the Title V Maternal and Child Health Program and the Title XIX Medicaid early identification and treatment program.[1]

B. Health Resources Potentially Available to Health Start Projects

Title V and Title XIX are the two largest potential sources of federal support for health services for a target population like Health Start.[2] Title V Maternal and Child Health Programs provide health care either through federally-funded projects or through the state health departments. The largest MCH programs are:

- Formula grants to the states for maternal and child health health service programs. The services vary from state to state but include: well-child conferences, immunizations, vision and hearing screenings, dental screening and treatment, and nursing services. (Federal funds available in FY 1973: $50 million; the state and local governments match 67 percent of the federal grant.)

- Formula grants to the states for Crippled Children's Services (CCS). States sponsor field clinics and also will reimburse individual providers for services to children who have crippling or potentially

1. See Appendix A.
2. See Appendix E for the Compendium of HEW Resources prepared by The Urban Institute to determine the resources available to economically disadvantaged pre-school children.

crippling conditions. Diagnostic services are available to all children under 21; however, treatment services are limited to the economically disadvantaged. (Federal funds available in FY 1973: $20 million; states must match 60 percent of federal grant.)

- Children and Youth Projects (C&Y). Federal money is available for project grants for direct service. The 59 grantees are primarily medical schools, teaching hospitals, and health departments which are to provide comprehensive, complete and continuous health care services to children in low-income areas. (Federal funds available in FY 1973: $53 million.)

- Maternity and Infant Care Projects (M&I). Project grants are available for maternity care, infant care, and family planning. The only children eligible for M&I services are under one year. (Federal funds available in FY 1973: approximately $46 million.)

- Projects for Dental Health of Children. Eighteen projects provide continuous and comprehensive dental care including treatment to children 3-10 years of age. (Federal funds available in FY 1973: $1.2 million.)

The Title XIX Medicaid program is the largest federal resource for child health services, both in terms of dollars spent and number of children served. Unlike the Title V MCH programs, Medicaid does not provide direct service--merely financial reimbursement to providers for health services given to those enrolled in the Medicaid program.

Even though Title XIX is considered an open-ended appropriation, its actual size as a health resource is limited by the state matching requirements, which range from 17 to 50 percent. Medicaid funds, like the MCH funds

for state formula grants and the Crippled Children's program, are allocated to the states partially on the basis of the number of individuals in the state that the program is intended to serve. State Medicaid eligibility requirements vary from state to state but include at a minimum all recipients of public assistance. Approximately one-half of the states also include individuals designated as "medically-needy."

Two Medicaid reimbursement programs had potential usage in the Health Start program:

- The regular Title XIX reimbursement program. This provides essentially episodic medical services. States are required to reimburse providers for inpatient hospital services, other laboratory and X-ray services, physician services, and some home health care. Some states provide dental and other care as well. (Federal funds allocated in FY 1973: $4 billion.)

- Title XIX reimbursement for Early, Periodic Screening, Diagnosis and Treatment (EPSDT). Even though legislation was passed in 1967 to expand reimbursement provisions for periodic screening, diagnosis, and treatment for Medicaid children 0-21 years of age, only now are states in the process of implementing that legislation. The states were to have offered, at a minimum, dental, vision, and hearing screening services to children in the age group 0-6 by February 1972 and to all Medicaid eligible children under 21 by June 1, 1973. (Most states did not meet these deadlines; therefore for most Health Start projects, EPSDT remained only a potential resource.)

Other HEW resources potentially available for use in Health Start are:

- The Community Health Centers. Approximately 55 projects are located in areas of scarce health resources. Persons are eligible who live in the

designated target areas and meet OEO poverty guidelines. Comprehensive health services are available to entire families.

The Indian Health Services. This resource offers a wide range of health care services for both preventive and episodic care. Eligibility is limited to Indians who, in most cases, must live on reservations.

- Migrant Health Services. Project grants are available to public and non-profit private agencies that will match a part of the project grant. The projects are usually set up in areas with large groups of migrants or seasonal farmworkers.

- Community Mental Health Centers. Like the Community Health Centers, these operations make care available to residents in certain geographic areas. Approximately 400 centers offer inpatient, outpatient, 24-hour emergency care, partial hospitalization, and consultation and education. Some CMHCs have special facilities and programs for children, such as therapeutic nursery schools, counseling and therapy for parents, and training sessions for pediatricians in detecting early problems. (Sliding fee scales are required by federal law.)

- National Health Service Corps. This program provides for health personnel (whose salaries are paid by the program), and it is aimed at communities which lack health resources. To date, approximately 300 personnel have been assigned.

- Childhood Lead Poisoning Control Projects. Grants are available for local governments who wish to screen children for high blood lead levels and then to provide follow-up treatment when needed, emergency medical treatment and emergency detoxification of home environments, and an educational program to alert the community to lead-based paint poisoning of children.

In addition to these HEW resources, there are various other possible sources of health services available to programs like Health Start and Head Start. Some of them are: local hospitals, clinics, physicians, dentists; university departments and schools, including medical and dental schools; private foundations, religious welfare associations, and fraternal organizations; and various private firms. The availability of these resources varied greatly from project to project.

C. HEW Efforts at Coordination of Resources in the 1972-73 Health Start Program

1. The National Role

A number of HEW agencies participated in the general planning of the 1972-73 Health Start program.[1] They met from January to July 1972 to finalize general requirements for the 1972-73 program, to review specific project proposals, and to discuss the roles of various agencies in the Health Start program.

At an early meeting on coordination, the "national Health Start committee" discussed the possible use of Medicaid in Health Start along with a staff member from a state Medicaid agency. At follow-up meetings, they looked into the feasibility of Health Start projects receiving provider numbers for the Medicaid Early Periodic Screening, Diagnosis and Treatment Program (EPSDT) or using EPSDT funds (through other state designated providers) for the Health Start screening and treatment program. There was uncertainty, however, about developing EPSDT agreements between Health Start projects and state Medicaid agencies because of possible state delays in implementing the EPSDT regulations.

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1. The agencies were: the Office of Child Development (OCD) program and research staffs; staff from the Medical Services Administration (MSA) in the Social and Rehabilitation Services (SRS); Maternal and Child Health Services (MCH) in the Health Services Manpower and Mental Health Administration (HSMHA); and the Bureau of Health Manpower Education, the Public Health Service, National Institutes of Health (NIH).

At the committee level, the SRS/MSA representative encouraged and voiced support for any collaborative work that would result in state agency action and the implementation of demonstrations sponsored by the Office of Innovations in MSA. (Incidentally, this representative was one of the few HEW headquarters staff members to get involved in local Health Start coordination activities.) At the policy level, MSA encouraged interagency collaboration by citing Health Start in the June 1972 EPSDT guidelines[1] and by urging the SRS regional office staffs to take a leadership role in the SRS-OCD collaborative effort.

Headquarters staff of SRS sent three memoranda on the 1972-73 Health Start program to the SRS Associate Regional Commissioners for Medical Services. The first memo from the SRS administrator encouraged regional MSA participation on the regional OCD interagency committee, in selecting the Health Start sites, and in contacting the state Title XIX agencies. He attached to the memo Appendix B of The Urban Institute's first year evaluation report ("Medicaid Support for Health Start") to show that "little, if any, assistance was provided Health Start programs."[2] The administrator expressed the hope that the "report for Health Start 1972 will provide a more encouraging example of the strength of an integrated service approach, a high priority for both the secretary and myself."[3] Another memo indicated strong support for the program and included, for the regional offices, action steps for involvement in both state agency and project activities:

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1. For copy of guidelines see Memo to State Agencies Administering Approved Medical Assistance Plans from the Assistant Commissioner, Medical Services Administration, dated June 28, 1972.
2. See Appendix C for SRS communications to regional SRS/MSA.
3. Ibid.

A list of the Health Start projects in your region and the names and phone numbers of the Health Start Coordinators assigned to these projects is enclosed in (Attachment 1); also two copies of each of these Health Start projects (Attachment 2). I am asking that you:

(1) Send the title XIX agency a copy of each of the Health Start projects in his State, and share with him the information contained in Mr. Twiname's memorandum, and Field Staff Information and Instruction Series #26 on this subject. (Attachment 3)

(2) Arrange a meeting with the regional OCD Health Start Representative, the State title XIX agency, and the local project coordinators for projects in your region to (a) discuss the role that the Medicaid program can play in implementing Health Start projects in that State, (b) establish channels of communication for the Health Start project coordinator both at the State and local level, and (c) work out realistic arrangements for implementing interagency collaboration, including appropriate reimbursement arrangements.

(3) Advise the local Health Start coordinator of the time and place of the scheduled interagency meeting in the State Title XIX agency office.

(4) Advise me by August 25, 1972 of the results of such meetings so that this may be included in the monthly status report to the Secretary on OPS programs of high priority.

The Office of Innovations is planning to undertake several demonstrations on early and periodic screening, diagnosis, and treatment in the coming fiscal year. You may, therefore, wish to consider this possibility in communities where such an interagency activity with Health Start might be productive. I understand that Dr. Helen Martz has already discussed such a possibility with . . . on your staff, and . . . from the . . . [State] title XIX agency who attended the Regional OCD orientation session . . . A preliminary review of the Health Start project in . . . gives indication of a good potential for interagency collaboration. Technical assistance in the development of such a project will be available on request.

I know that I can count on your cooperation in this interagency effort to implement the program for early and periodic screening, diagnosis, and treatment. . .[1]

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1. Memo to Region I Associate Regional Commissioner for Medical Services from the Commissioner, Medical Services Administration, SRS, July 17, 1972.

2. The Regional Role

In his cover letter[1] for the Health Start guidelines, Dr. Edward Zigler, then the national director of OCD, reminded assistant regional OCD directors of:

> The emphasis this year on developing new techniques in the coordination of resources of other HEW programs to make medical and dental services available to low income preschool children . . . to ensure the success of the Health Start effort, you must work closely with representatives of collaborating HEW agencies such as . . . HSMHA and . . . SRS. Their involvement is essential to meeting the program's objectives. For your information, attached is a copy of SRS's Program Regulation Guide on . . . [EPSDT] and their listing of Associate Regional Commissioners for Medical Services.

The attached guidelines described the OCD regional roles as (1) working with regional HSMHA, SRS, and the USPHS Dental Division personnel to "ensure maximum impact of the resources of these agencies on Health Start" and (2) overseeing the establishment of a regional Health Start committee to be composed of "representatives of collaborating HEW agencies such as HSMHA and SRS." The committee was to (1) assist in suggesting possible sites, (2) solicit proposals, (3) recommend proposals to be funded, (4) work with the USPHS Division of Dental Health, (5) make grants, and (6) monitor grantees. In the proposal review process the committee was to give priority to grantees that could demonstrate a collaborative approach to the provision of health services.

At least five regional offices reported a lack of communication between the OCD regional representative in charge of Health Start and the MCH staff or SRS staff or both. Based on the results of interviews with 51

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1. See Appendix A for the Zigler letter and the 1972-73 Health Start guidelines.

relevant HEW staff members,[1] The Urban Institute found that Health Start interagency activity was limited because various agencies (including OCD) considered Health Start a low priority program. Explanations given were that (1) Health Start was to have a limited life and, therefore, relative to other priorities, was not worth a significant commitment of time, (2) the staff priorities of other agencies had established Health Start as a low priority, and (3) non-OCD staff felt that OCD should stay out of the health business.

Of the six regions that had Health Start committees, three did more than proposal review. One region (I) used the OCD-HSMHA Coordinating Committee for Child Development Programs as a review panel for Health Start proposals, while another region (VII) used an existing Child Health Task Force[2], chaired by the Regional Medical Director, as its interagency Health Start committee. Region VII committee work successfully demonstrated the feasibility of HEW interagency cooperation and collaboration, yet the committee's existence and success cannot be credited to OCD initiative.

The Region III Child Health Task Force selected Health Start as one of its projects, because their goals were compatible with Health Start goals, i.e., coordination of child health programs. The committee scheduled two sessions to review the Health Start proposals, a number of meetings to coordinate child health programs (one being Health Start), and one meeting to determine the use of EPSDT in the Health Start program. In addition, the committee organized and conducted interagency site visits

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1. The Urban Institute conducted telephone interviews with the OCD regional staff in charge of Health Start to determine the amount of Health Start interagency activity that had taken place in the regional office and to identify key HEW staff to be interviewed. The number of interviews varied from region to region according to the amount of Health Start interagency activity.

2. This was a sub-group of the Federal Regional Child Health Task Force.

which were paid for by the various participating agencies. They followed these visits to the two regional Health Start projects with specific action steps for utilizing federal and state health resources.

Nine individuals visited the Portageville, Missouri, project and 10 the Carroll, Iowa, project. Three team members participated in both monitoring trips (the MCH representative and chairman of the task force, the AAP Health Liaison Specialist, and the USPHS dental consultant). Other team members included regional staff from NIMH, DOL, HUD, SRS/MSA, OEO, and state staff from OEO, a Mental Health authority, and a university nutrition department. Each team member reviewed a specific project component and prepared a written monitoring report with his observations and recommendations. Then the AAP Health Liaison Specialist sent to the CAP directors at each project the detailed individual reports plus a cover letter with the task force recommendations for improvements.

Each report concluded with a summary of the action steps taken by team members after the site visits. Some of those steps which dealt with the use of HEW resources in Health Start were: (1) the regional committee's encouragement of appropriate state agency participation (by sending explanations of the Health Start program as well as the task force's findings and recommendations) and (2) the scheduling of meetings between state Title XIX agencies and health coordinators. Admittedly, such a comprehensive effort by a regional committee is due to the demonstration status of the Health Start program. It would be naive to think that such participation could continue indefinitely or that it could function for a larger program without the investment of considerable resources (staff time and travel money) by all participating agencies.

Region VII was the only region in which the committee--as a group--worked on the coordination efforts. Individual staff members in six other regions initiated assistance for Health Start projects by reaching agreements with federal and state agencies particularly in the area of Medicaid. For example, in Region I, the MSA staff organized meetings between State Title XIX agency staffs (Maine and Rhode Island) and Health Start coordinators.[1] These sessions dealt with the role of Medicaid in implementing the Health Start program, the establishment of communication channels for the coordinator at the state and local levels, and "realistic arrangements for accomplishing interagency collaboration including appropriate reimbursement arrangements."[2] A Region III SRS/MSA staff member organized a similar meeting for the Fairmont Health Start project and the West Virginia Title XIX agency.

Other staffs also acted as liaison between local and non-local agencies. Dental consultants in three regions and health liaison specialists in four contacted state Medicaid agencies on behalf of Health Start. MSA staffs from Region IV and X also spoke with state Medicaid personnel about Health Start's use of the Title XIX program. In response to a request from the coordinator in Mora, Minnesota, a staff member from the Division of Community Environmental Management in HSMHA's Region V office investigated the possibility of conducting a lead screening program for that Health Start project.

The results of HEW efforts to assist projects will be discussed later as well as the HEW agency perceptions of the compatibility of their programs with Health Start.

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1. Also in attendance were the AAP Health Liaison Specialist and National SRS/MSA staff.

2. Memo to Maine and Rhode Island state Medicaid agencies from the Region I Associate Regional Commissioner for Medical Services, dated July 31, 1972.

D. Efforts at Coordination at the Project Level

When interviewed by The Urban Institute, many of the HEW headquarters and regional office staff members characterized their roles in coordination efforts as minimal and the roles of health coordinators as major. Although the OCD-sponsored conferences in spring 1972 and winter 1973 informed coordinators of this responsibility, the coordinators varied greatly in the amount of time spent getting commitments for health services. While many coordinators lived up to their titles, negotiating with various agencies and individuals, others devoted little time to coordination activities.

1. Reasons for Lack of Coordination Efforts by Projects

There are several reasons some Health Start projects spent little time on interagency coordination:

- Most of the Health Start services, paid by an agency other than Health Start, had been used previously in the local Head Start project and/or in the first year Health Start project. In these cases, little negotiation was necessary; Health Start coordinators merely set up schedules and made other general arrangements.
- A service package had been developed by contacting very few agencies. For example, if a state or local public health department or a hospital offered most of the Health Start required screening regimen, the coordinator did not think it necessary to make additional contacts for free services.
- The planned Health Start budget itself was to pay for all or most of the health care; therefore, several coordinators made no effort to reduce the cost to OCD by negotiating for use of other resources.

- Few HEW or other potential resources for use by Health Start existed in the community; therefore, there was no opportunity to enter local negotiations for such free health care. Most coordinators in areas of limited health resources did not attempt to bring new federal or state health grants or health services to the community.

2. Data Sources and Limitations

Data in this section of the report are based on various sources: the Field Collection Formats, the Planning Formats completed by the projects at the end of the program year, the June 1973 Expenditure Formats, a special December 1972 telephone survey of the coordinators about the Medicaid program, and a questionnaire on coordination of HEW resources completed by the coordinators at the February-March 1973 coordinators conferences. Almost all of the data from these sources are fragmentary; therefore, the following discussion is based on a composite of individual project reports of service coordination results.

During the second series of coordinators' conferences, the health coordinators indicated that data recording and reporting on coordination efforts were for them the least useful of any of the required evaluation reports. This lack of obvious usefulness could account for the poor quality of the data received by the evaluators. Furthermore, although the coordinators expressed their own reasons for "non-use" of resources, evaluators could not verify all the data through independent analysis or interviews of representatives of local agencies. Therefore, information in this section is incomplete and perhaps, in some cases, may be inaccurate. However, the general categories of project "use" and "non-use" should be accurate.

3. Use of Maternal and Child Health Programs in Health Start Projects

The MCH programs represented the largest potential source of service delivery for Health Start projects.

a. Project Efforts in Reaching Agreements with MCH Programs

Table III-1 indicates that the MCH program used most extensively by the Health Start projects was the State Formula Grant program which provided immunizations, hearing, vision and some dental screening, training workshops and nutrition counseling. Some projects also used the health records supplied by the state MCH offices. As Table III-1 shows, only one project using services available through MCH state formula grants had to negotiate new services; the other 18 projects had access to the MCH services primarily because of previous arrangements with the local Head Start project or because the services were readily accessible, for example, immunizations through the local public health departments.

Not as many projects used the Crippled Childrens' program as used the MCH state formula grant resources, yet more projects reported having access to Crippled Children's services (whether they used them or not) than services provided through MCH. Of the projects negotiating for use of CCS for the first time, seven referred children for diagnosis and treatment, while one did not need to use the Crippled Children's services. In the latter case, even though the Health Start program was discontinued, the local Head Start children may benefit from the negotiations as some of the Health Start children did from local Head Start efforts.

Coordinators reported that the MCH-funded projects (Children and Youth, Special Dental Projects for Children, and Maternal and Infant Care) were used infrequently, mainly because they were not in the geographic (catchment) areas defined by the MCH programs. Two Health Start projects

TABLE III-1

RESULTS OF PROJECT EFFORTS CONCERNING
USE OF MATERNAL AND CHILD HEALTH PROGRAMS

	MCH Programs / Project Efforts	State Formula Grants	Crippled Children's Program	Children and Youth Projects	Special Dental Projects for Children	Maternal and Infant Care Projects
NOT USED	No Contact Made	6	3			4
	Not in Area or Lack of Funding	5	1	29	29	24
	Contacted, No Agreement Reached		1			
	Contacted, Agreement Reached, Not Used		1			
	Available to Project, Not Used or Needed		11			2
USED	Used in Head Start or First Year Health Start	18	6			
	Contacted, New Agreements Reached	1	7	1	1	
	Total Projects Using Program	19	13	1	1	0
TOTAL PROJECTS *		30	30	30	30	30

* Amarillo was eliminated from the analysis; San Juan Summer and Full Year projects were considered together because the same general approach was used in both sessions.

(Baltimore and Galveston) were in the same city as a C & Y project but outside the C & Y catchment area. In fact, the target areas for both Health Start projects were established because the children were considered not to have access to health services.

The two projects in New Mexico were told that they could use the M & I project in Albuquerque for high risk infants, but neither Health Start project made any referrals to the M & I project. The Albuquerque project hoped to receive some nutrition counseling services for the Health Start parents from the M & I project; instead it put together its own nutrition program using various guest speakers. (Four Health Start projects within geographic boundaries of M & I projects did not explain their non-use of M & I services.) Only one project (Dayton) used a C & Y project, and one other (Carroll) used a Special Dental Project for Children.

b. Results of HEW Assistance in OCD-MCH Interagency Coordination

With the exception of the Region VII Child Health Task Force efforts, no regional or national assistance was offered to Health Start projects in gaining access to MCH resources. The Region VII medical director contacted the state MCH and Crippled Children's program staffs, told them about the Health Start program, and encouraged them to cooperate with the Health Start project in the state. However, it is difficult to determine the effects of these actions, because the Carroll project had contacted both agencies in advance of the regional contacts and the Portageville coordinator had used both program resources in the first year Health Start and in the Head Start projects. In any case, both projects used MCH programs.[1] Three projects (Grants, Mora, and The Dalles) reported

1. Both reported using immunizations supplied through the MCH formula grants to the states; Carroll also made referrals to Crippled Children's and benefited from a dental training workshop sponsored by an MCH-funded special dental project for children.

discussions with MCH state agencies in which they initiated the contacts without HEW assistance.

c. Constraints in the Use of MCH Programs

The two reasons most often cited by HEW regional office staffs, Health Start projects, and local MCH staffs for not using MCH program resources were: location (different MCH and Health Start project boundaries) and lack of MCH funds (primarily in reference to the state formula grant programs). One Health Start project (San Juan) indicated that the Crippled Children's program was overloaded and that a cut-back in services was expected. Several other Health Start projects and regional office staffs indicated that the states were not committing the matching funds for Crippled Children's services, and some programs were awaiting word from their state legislatures about funding.

Because it is impossible to separate federal MCH funds from state and local resources supporting local public health departments, only general comments can be made about the availability of MCH-funded services provided through those agencies. Although Head Start projects often used immunization clinics run by the health department, at some sites, two problems hampered such use: lack of transportation for the Health Start children and lack of public health department staff to handle large groups of Health Start children. Health Start also used well-baby clinics extensively in spite of the facts that the scheduled locations and timing of clinic operations were not always convenient for Health Start and that, in several projects, local medical societies opposed the operation of such clinics in the communities.

What is not surprising (given the goals of public health departments and possibly their lack of understanding of the Health Start goals) is that officials from six public health departments felt that Health Start

offered no possibility of coordinating existing resources and that it only duplicated existing resources. Five officials felt that the money would have been better spent if given to them; consequently, for them, coordination meant competition and an additional layer in the bureaucratic structure.

4. Use of Title XIX in Health Start Projects

Title XIX (the Medicaid program) is the largest single resource available for health care for economically disadvantaged children from birth to six years of age. This was true even before the implementation of the Early Periodic Screening, Diagnosis and Treatment (EPSDT) regulation.

Generally, using Title XIX funds required little Health Start effort, because the Medicaid reimbursement process for certain services is relatively automatic. The recipient of services need only be enrolled and the individual service provider authorized by the state Medicaid agency to merit reimbursement for services. However, Health Start projects still needed to find providers who would take Medicaid patients and to determine the eligibility status of the children so that appropriate agencies would be billed. In practice, this was not a simple process, because in some communities it was difficult to find physicians and dentists willing to accept the bureaucratic processes and the long waits for payment that are characteristic of Medicaid.

Negotiating for funds available through the newly-implemented EPSDT regulations was even more complicated. The early series of coordinators' conferences as well as the Health Start guidelines had emphasized the use of EPSDT funds by Health Start. But because the regulations were still in the process of being implemented by the states, negotiations were complicated, time-consuming, and generally fruitless. This was due both to the state actions and to the nature of the Health Start program.

a. Project Efforts in Use of Title XIX Funds

There are five general types of activities that Health Start projects could have undertaken to ensure maximum use of Title XIX funds: (1) checking eligibility of Health Start children early in the year in order to benefit from as many reimbursement services as possible, (2) arranging for Medicaid enrollment of children who are eligible for Title XIX benefits, (3) finding providers who accept Medicaid patients, (4) billing the state Medicaid agency for all eligible services, and (5) securing an EPSDT provider number or arranging with a state-designated EPSDT provider to be reimbursed for screening and other components of the Health Start program.

(1) Medicaid Eligibility and Enrollment of Health Start Children

The most obvious reasons for Health Start not using the Medicaid program extensively were that children were not eligible and that, even if they were eligible, they were not enrolled. Both state eligibility criteria and local enrollment processes are so complicated that they might have discouraged enrollment.

(a) Eligibility Status of Children

One of the most obvious explanations for Health Start projects' not using the Medicaid program is that at least 42 percent of the Health Start children were reported to be ineligible for state Medicaid assistance. Since requirements vary from state to state (and in, some cases, from county to county), it is difficult to cite all of the reasons that Health Start children were ineligible for Title XIX benefits.

In a special Urban Institute telphone interview about Medicaid, Health Start coordinators indicated that family income and employment

status were the two major reasons for Health Start children not being eligible for the Medicaid program. More specifically, families were not recipients of public assistance, were not receiving aid to dependent children, or did not meet the state definition of "Categorically Needy." Other reasons were that the head of the household was employed, that the family was intact (in other words, the father was in the home), or that the family had health insurance. One coordinator said that state welfare requirements excluded from Medicaid families who owned or were buying a home. Another coordinator in a different state said that state Medicaid regulations excluded families who owned a car over $750, and this rendered ineligible a large portion of the Health Start children in that rural project.

Several projects (Dayton, The Dalles and Hillsboro) enrolled migrants in stream, therefore, the children were ineligible for state Medicaid benefits because they did not meet Medicaid requirements in the states in which they were when enrolled in Health Start. The children in Health Start projects serving "home-based" migrants (Amarillo and Ft. Lauderdale) did not have this problem but they were seasonally excluded--as were chidren of farmworkers in other projects--because of their family's changing employment status. One project chose to enroll a large number of children whose parents were enrolled in the WIN (Work Incentive) program. These children were automatically excluded from state Medicaid benefits because of their parents' improved employment status. In only four projects (Penobscot, San Juan, West Palm Beach, and Mora) were most of the Health Start children eligible for the Medicaid program.

(b) Enrollment Status of Children Eligible for Medicaid Benefits

Table III-2 shows that almost all of the children enrolled in the Title XIX program were enrolled before they entered Health Start. One percent of the Health Start children were enrolled in Medicaid during the program year, and 23 percent known to be eligible were not enrolled in the Medicaid program.

Clearly, some projects did not feel it was their responsibility to assist the enrollment of children in the Medicaid program. A few projects did not encourage Medicaid enrollment, because they (or the parents of the Health Start children) thought the Medicaid program carried the stigma of being on welfare. One project reported that the local Social Services department did not pursue the enrollment of new families so that it could "keep the welfare rolls down."[1] Another project reported that the local welfare department "considers each case independently;" therefore, the project coordinator had no assurance that children referred to the Social Services department would be enrolled.

Whatever the attitudes, the Health Start projects could refer eligible children to the local Medicaid agency but not directly enroll them in Medicaid. Health Start project staffs offered no rationale for not knowing the Medicaid eligibility status of the Health Start children--presumably a minimum level effort. Perhaps the parents would not reveal this information to the Health Start staff, but, whatever the reason, 15 percent of the children had unknown Medicaid status. Undoubtedly, some of them could have been eligible and enrolled and, hence, could have used the Medicaid program for the health services received in the Health Start program.

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1. The irony is that this particular state offers a very broad package of Medicaid services.

TABLE III-2

MEDICAID ELIGIBILITY
STATUS OF HEALTH START CHILDREN

REGION		Enrolled Before H.S.	Enrolled During H.S.	Eligible but not Enrolled	Not Eligible	Unknown	Missing Data
I	Pawtucket, R.I.	128	2	4	100	48	26
	Penobscot, Me.	138	2	496		1	1
II	Toms River, N.J.	87	6	3	64	8	1
	Albion, N.Y.	64		1	34		1
	San Juan, P.R. (Summer)	85					2
	(Full Year)	110					
III	Baltimore, Md.	272		2	24		1
	Fairmont, W.Va. (Marion)	52			56	1	
	(Barbour)	23		2	59	2	2
IV	Boone, N.C.	81	1	20	32	180	4
	Orlando, Fla.	28			149	1	1
	Charleston, S.C.	24	1		268	5	6
	West Palm Beach, Fla.	60	19	113		4	
V	Flint, Mich.	253			103		6
	Mora, Minn.	25	35	236	1	5	2
	Dayton, Ohio	1			184		
VI	Albuquerque, N.M.	117		1	212		3
	Oklahoma City, Okla.	316		72	307	17	11
	Grants, N.M.	37			249	23	1
	Galveston, Tex.	44		2	49	3	
	Hammond, La.	210		4	50	550	43
VII	Portageville, Mo.	131			7		124
	Carroll, Iowa	28	1	10	340		
VIII	Center, Colo.	22			117	1	
	Cedar City, Utah	20	1		125	67	
IX	Merced, Calif.	167			366		46
X	Hillsboro, Ore.	51	7	1	147	1	9
	Medford, Ore.	81	7		84		7
	Coos Bay, Ore.	101			18		
IMPD	The Dalles, Ore.				848		16
	Amarillo, Tex.						
	Ft. Lauderdale, Fla.	359	12	16	188	220	12
TOTAL		3115	94	983	4181	1137	325
% of TOTAL		32%	1%	10%	42%	12%	3%

(2) Use of Medicaid for Reimbursement of Health Start Services

Only two projects, The Dalles and Dayton, had no children who were eligible or enrolled in the Medicaid program. The rest of the projects theoretically could have used Medicaid to pay for some of the health services. Ten Health Start projects reported that Medicaid paid for some health care. One reason for the limited use was that most states had not implemented the EPSDT regulations; therefore, most of the services for which Health Start could be reimbursed were for episodic medical treatment.

(3) Project Efforts to Develop Agreements to Use EPSDT

Eighteen projects made early efforts to reach an agreement with the state Medicaid agency over use of EPSDT. However, there were no early agreements negotiated by Health Start projects. Over the course of the year, 21 of the 30 Health Start projects had discussions about EPSDT with state Medicaid agencies. Most of the projects contacted the state agencies directly without any outside assistance. In addition, six projects initiated meetings and telephone calls to state MCH, public health department and Crippled Children's staffs to try to negotiate an EPSDT contract. Two projects reported calling their OCD regional offices for assistance.

Although only two projects reported using EPSDT for a limited number of health services, two other projects reported having agreements with the state Medicaid agency or local EPSDT providers by the end of the Health Start year. At least two other projects were at final negotiating stage, but no firm agreements had been reached.

Medicaid (through the EPSDT regulations) paid for the medical and dental screenings of 15 Health Start children in the Carroll project and 27

medical screenings in West Palm Beach. The Carroll agreement was reached late in the year, which could explain why screening for only one-half of the children enrolled in Medicaid was paid by Medicaid. Because Florida was one of the first states to implement the EPSDT regulations, screening some of Health Start children through the public health departments (the only state designated EPSDT providers in Florida) should have been possible. However, no children were reportedly screened through EPSDT in the Orlando or Ft. Lauderdale projects. In West Palm Beach, 50 Medicaid-eligible children were sent to physicians' offices for screening instead of the health department because, according to a West Palm Beach public health department official: "Health Start wants to provide quality care and we are using paraprofessionals in the Medicaid program."[1]

The Portageville Head Start-Health Start had reached a tentative agreement with the state Medicaid agency, pending the commitment of funds by the state legislature. The plan was that the Head Start-Health Start coordinator would share with the state her data on the health services already given to Medicaid children and, in turn, after implementation of EPSDT by the state, Head Start would be reimbursed for screening Medicaid children.

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1. The West Palm Beach case is interesting because the site was selected on the recommendation of the Region IV dental consultant who thought that West Palm Beach could be a good demonstration area for Health Start. He contacted the health department to determine if there was any interest in running a Health Start project. The proposal was written and funded to delegate the entire health service component to the health department. Because of the "quality" issue, many of the screening services were purchased from private providers by the health department (using Health Start funds instead of billing Medicaid for EPSDT services). In some ways, EPSDT in West Palm Beach was an untapped resource because only one-third of the children enrolled in Medicaid were screened through EPSDT and 41 percent of the children eligible for Medicaid were not enrolled in Medicaid, which precluded their use of Title XIX funds.

Of the three projects mentioned that were relatively successful in negotiating for or using EPSDT funds, two of them--Carroll and Portageville--not only made several contacts with state agencies but they also received help from regional office staffs--the Region VII Medical Director and the OCD health liaison specialist.

b. Penobscot Health Start: A Provider of Medicaid's Early Periodic Screening, Diagnosis and Treatment Program

Only one project, Penobscot, actually secured a provider number from a state Medicaid agency. Figure III-1 demonstrates that the following factors were involved in negotiating the EPSDT contract: (1) participation of six agencies at four levels of government, (2) issuance of policy directives from the national level down through the agency structures in both OCD and SRS, (3) communications and negotiations through interagency meetings, (4) personal commitments and interest at all levels, and (5) a competent Health Start staff to carry out the effort.

OCD headquarters staff must be given credit for creating the opportunity for all participants to communicate by designing the coordinators conferences to include all four levels of government. In the Penobscot case, all four levels (six agencies) attended. It was on that occasion that the state Medicaid staff and the Penobscot Health Start staff began their discussions on an EPSDT contract. OCD and SRS/MSA staffs at the national and regional levels should be commended for working together on both demonstration programs.

Most of the actual work of negotiating the contract, of course, was done by the state Medicaid agency and Health Start staff. They spent six months drafting and negotiating an agreement. By January 1973 (when most Penobscot Health Start screening had been completed), the first

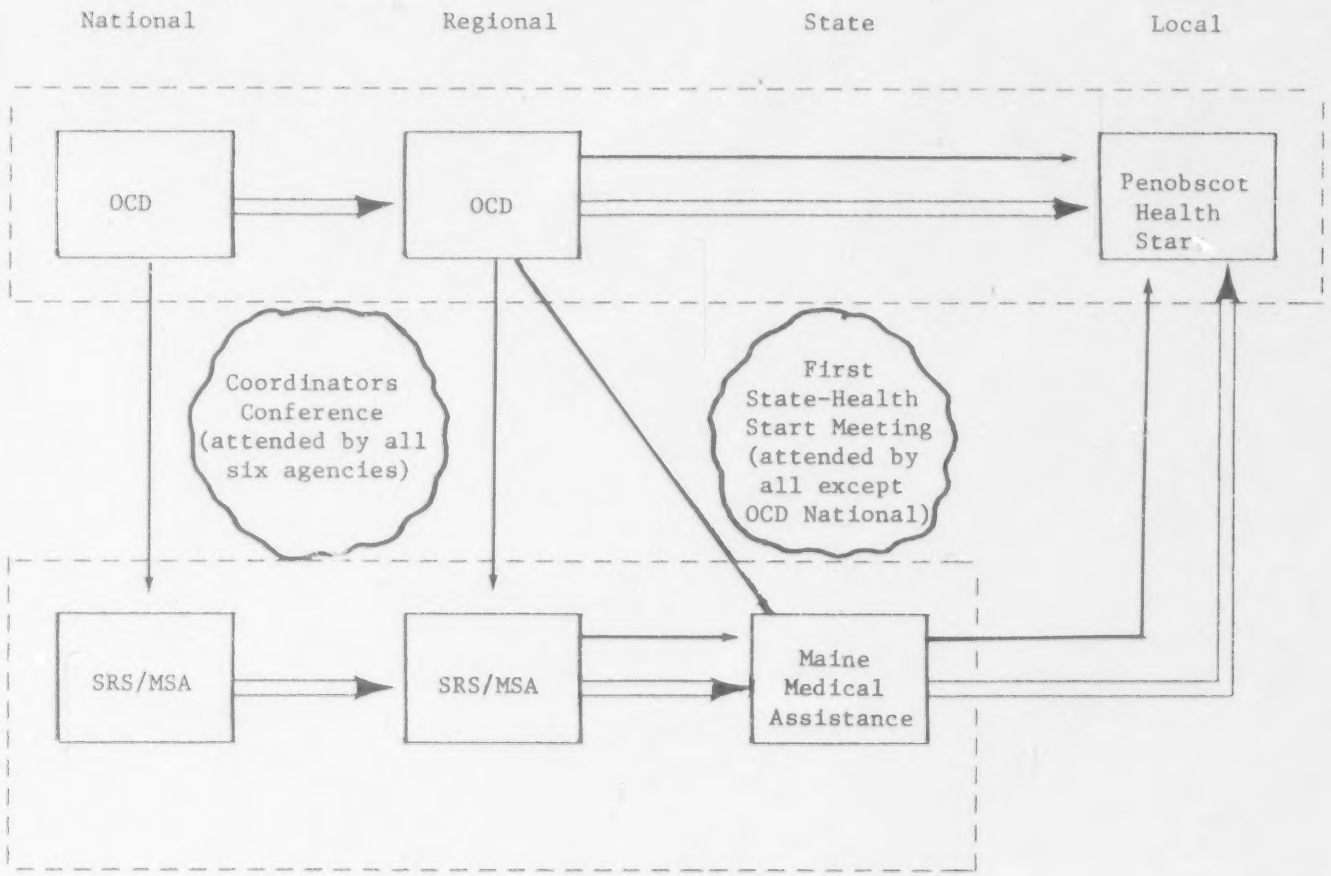

Figure III-1--Participants and Elements Involved in Penobscot's EPSDT Contract

non-Health Start child was screened through Maine's EPSDT program. Even though the EPSDT contract was not signed until July 1, 1973, the state agreed to reimburse the Penquis County Community Action Agency--the agency receiving the contract--for all screening done from January 1973. In that period of time, Health Start staff identified and screened 3200 Medicaid children in four counties. Plans call for the same staff who worked on Health Start to screen 10,000 additional children by June 1974 (the approximate total number of children enrolled in the 1972-73 Health Start program!).

Even though Medicaid reimburses for individual services, the average cost of Penobscot's EPSDT screening of a child was expected (and negotiated to be) $35. However, because all children do not need the entire battery of screens and tests (for example, young children do not require dental care and some children do not require lead poisoning screening), the health coordinator estimates that the actual cost for identifying and screening the children will be approximately $20 a child.

c. Constraints on Using EPSDT Funds in the Health Start Program

There are three major types of reasons why Health Start projects did not use Medicaid EPSDT funds:

- States did not implement the EPSDT regulations early enough for Health Starts to benefit, or states chose to identify particular types of agencies to conduct the screening (for example, public health departments, Crippled Children's agencies) which precluded Health Starts from becoming EPSDT providers.

- Not enough effort was put into developing state Medicaid-Health Start agreements--either on the part of HEW agencies or Health Start projects.

- Too few children were Medicaid-eligible in a project to justify spending an exorbitant amount of time on EPSDT negotiations.

d. Implications for the Head Start Program

One can assume that, even though the timing of the implementation of the EPSDT regulations precluded extensive use of EPSDT in Health Start, Head Start projects could be more successful in using the EPSDT reimbursement funds. Given the fact that Head Start has more permanence than Health Start state Medicaid agencies may be more willing to use Head Starts as EPSDT providers. Several state Medicaid staffs did indicate to the evaluators, however, that they did not think using small agencies (for example, Health and Head Starts) was an efficient way to implement the regulation because small agencies could not serve large enough numbers of children to be cost-effective. Some state agency staff also expressed the opinion that health-related agencies would be able to deliver health care more efficiently.

E. Amount and Type of Health Services Contributed by Other Agencies and Individuals

Figure III-2 shows that a high percentage of the tests given were provided through some other public agency or private resources. However, because the services were not of equal value,[1] the value of coordinated services that can be estimated is lower than Figure III-2 would imply. Three of the more expensive services--medical screening, dental screening and dental treatment--were usually paid by Health Start. Although precise cost data were not available, most of the costly medical treatments, like heart surgery, were financed by other agencies.

1. See Chapter VII for estimated value of "coordinated" resources.

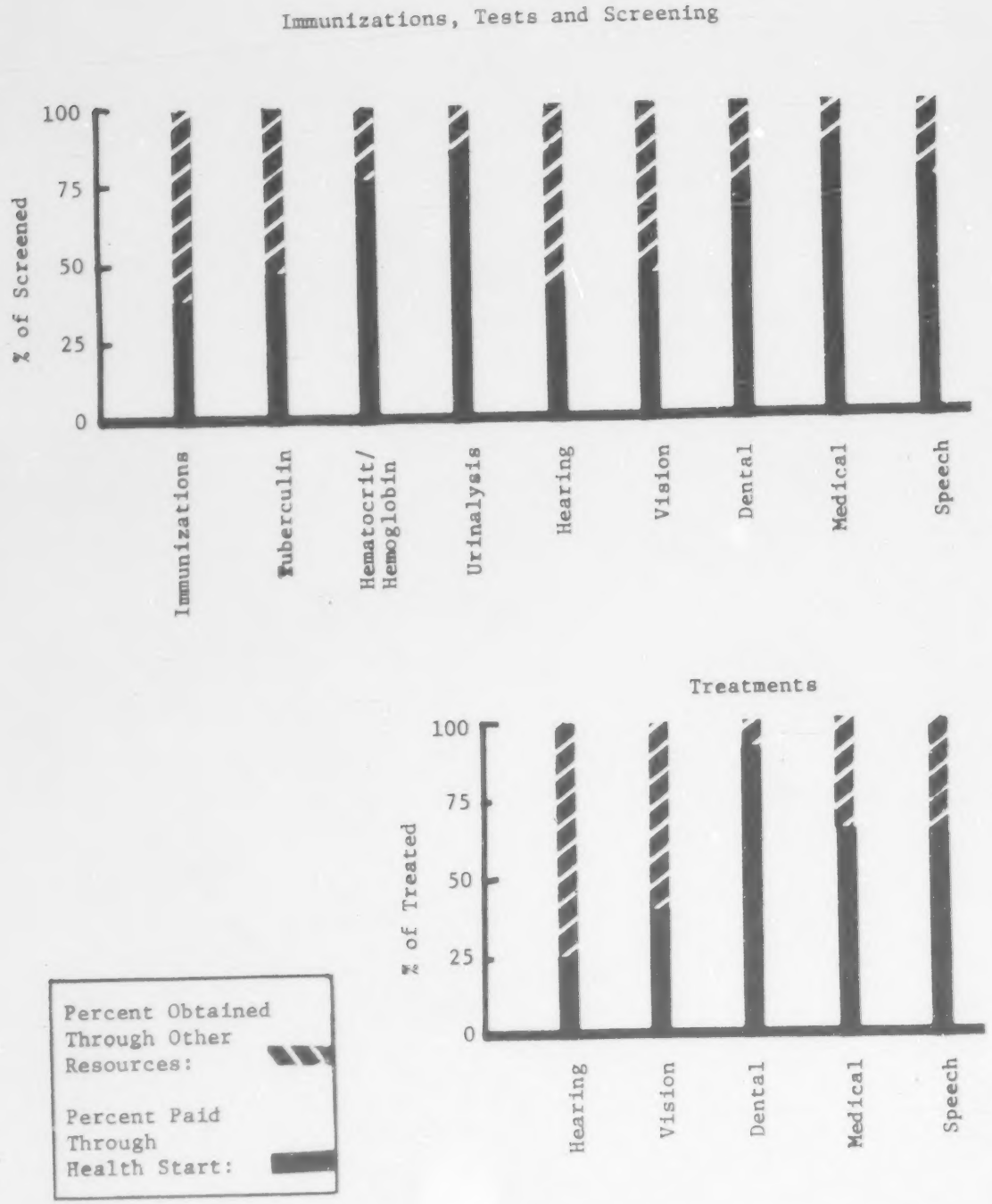

Figure III-2: Percent Health Services Paid Through Health Start Grant and Percent Obtained Through Other Resources

F. Conclusions, Implications and Recommendations

"Coordination of health resources" in Health Start primarily amounted to Health Start projects' using (to various degrees) numerous other health resources to provide health services to children. There was no co-mingling of funds, there were few collaborative efforts resulting in agencies changing their approaches to health delivery for children, and there was only one successful demonstration of a Health Start project's securing a Medicaid EPSDT contract.

There are more implications than recommendations that emerge from this part of the analysis of the Health Start program. They are: (1) It is difficult to change federal and health institutions. Changing federal agency operations may require legislative action to reduce the fragmented care now provided by HEW. Health agencies, like federal agencies, need greater incentives and resources to provide more comprehensive care to a population. (2) Health agencies have a need for Health Start-like services. Representatives of local health agencies indicated that Health Start offered the possibility of providing them with needed services: outreach, health education and transportation. (3) It is possible for an agency like Health Start to have access to various existing health resources; however, negotiating for such services takes staff time and project funds. The pay-off for such efforts on the short-run probably does not justify the cost of securing the agreements. With an on-going program like Head Start, the initial negotiations could produce years of care; therefore,such efforts could be cost beneficial.

For a program like Head Start, we make the following operational recommendations:

- Regional Offices of Child Development (possibly the AAP Health Liaison Specialists) should work with state agency staffs to secure EPSDT

agreements for several Head Starts. Securing an EPSDT provider number for several projects could be easier than for a single (small) Head Start project. If Head Starts cannot successfully negotiate agreements to secure EPSDT provider numbers, then Head Starts should refer whenever possible the Medicaid children to local EPSDT providers in order to take advantage of the Medicaid program and reduce the cost of their health components.

- Project staffs should be urged strongly to refer Medicaid eligible children for enrollment to secure maximum Title XIX benefits.

- Projects should negotiate early in the program year agreements for health care to be contributed by other agencies in order to take advantage of as many free services as possible.

CHAPTER IV

MEETING PROGRAM GOALS: ENROLLMENT, DELIVERY OF HEALTH SERVICES AND FUTURE CARE ARRANGEMENTS

A. Enrollment

Health Start projects identified in their proposals the number of children they intended to enroll. Table IV-1 shows that most of the projects (20) reached 90 percent (or greater) of their enrollment target. Four projects enrolled less than 50 percent of the number of children they planned to serve, and three enrolled substantially more than planned. Of the total planned enrollment of 10,000 children, Health Start projects enrolled 9,835.

B. Screening and Detection

The average enrolled child received 4.4 of the seven required tests and 0.8 optional tests.[1] Nine percent of the Health Start children received no required tests, and 20 percent received all seven. Forty percent received no optional tests, and 20 percent received at least two optional tests. Table IV-2 reveals that the percent of those tested who needed treatment was to an extent dependent on the age of the child. Data are presented for the total Health Start population and for children over three years old and under three years of age.

The most common health problem among Health Start children was dental disease: slightly over half of the children receiving dental exams needed some type of restorative work. Predictably, almost all of these children were over three years old. The five most common medical problems detected

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1. Appendix D presents data on performance of individual projects in the health service area.

TABLE IV-1: ACTUAL/PLANNED ENROLLMENT OF HEALTH START CENTERS BY REGION

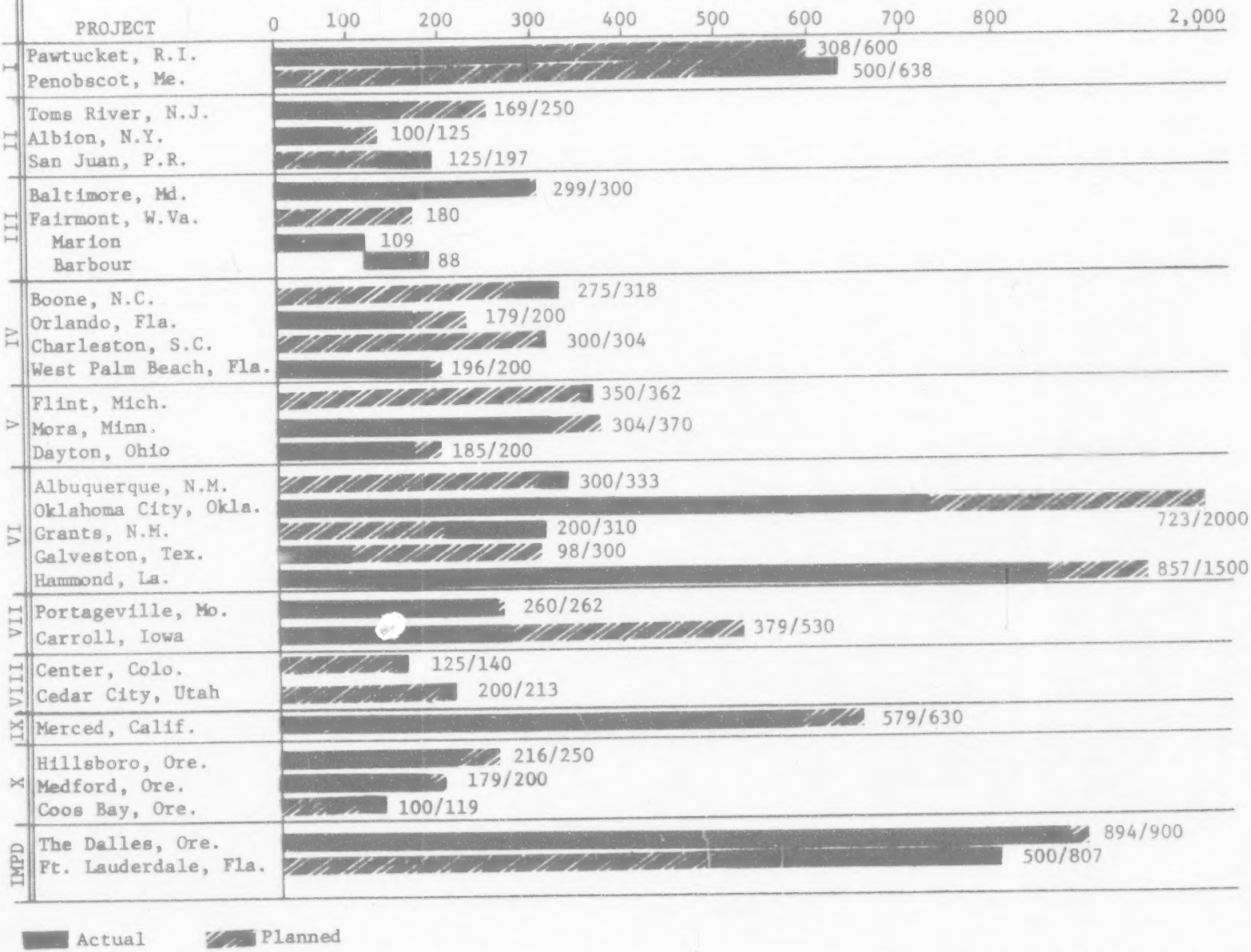

TABLE IV-2

SUMMARY OF HEALTH SERVICES
(FOR ALL CHILDREN AND FOR CHILDREN UNDER AND OVER THREE YEARS OF AGE)

	Type of Test	9835 Health Start Children				3580 Children Ages 0-36 Months		6055 Children Ages 37 Months and Above	
		Number Tested	Percent of Enrolled Who Were Tested	Percent of Tested Who Needed Treatment	Percent of Those Needing Treatment Who Completed Treatment (and Number Treated)	Percent of Enrolled Who Were Tested	Percent of Those Tested Who Needed Treatment	Percent of Enrolled Who Were Tested	Percent of Those Tested Who Needed Treatment
	Hemoglobin*	3084	31%	10.4%	36% (115)	37%	12.5%	28%	8.6%
	Hematocrit*	3089	31%	14.6%	43% (194)	32%	19.4%	32%	11.8%
	Tuberculin	5473	56%	0.3%	37% (6)	47%	0.2%	62%	0.3%
	Urinalysis	6186	63%	2.6%	64% (103)	48%	2.5%	72%	2.6%
	Vision	6337	64%	5.8%	43% (158)	48%	2.6%	75%	7.1%
	Hearing	5783	59%	3.6%	39% (81)	42%	2.7%	70%	3.9%
Optional	Speech	3083	31%	6.3%	6% (12)	25%	3.3%	35%	7.6%
Optional	Intestinal Parasites	921	9%	17.2%	57% (90)	1%	28.9%	14%	16.3%
Optional	Lead Poisoning	703	7%	10.5%	54% (40)	5%	9.4%	8%	11.1%
Optional	Psychological	868	9%	10.3%	18% (16)	11%	5.5%	8%	13.9%
Optional	Sickle Cell	1601	48%**	4.7%	19% (14)	15%	2.1%	17%	6.0%
Optional	Strep	213	2%	27.2%	97% (56)	2%	17.0%	2%	34.7%
Optional	Development	1311	13%	4.7%	13% (9)	15%	2.9%	12%	6.3%
	Dental Screening	4693	48%***	51.7%	74% (1795)	20%	24.4%	65%	56.9%
	Medical Screening	7301	74%	26.5%	53% (1025)	71%	27.6%	77%	25.9%

* Approximately 8 percent of the children received two blood tests
** Based on percent of black children enrolled
*** Does not exclude children under three years of age who might not have needed a dental examination

in Health Start children were: (1) nutritional deficiencies (5 percent of those tested), (2) acute upper respiratory diseases (4 percent), (3) ear diseases or infections (3 percent), (4) skin disorders (3 percent) and (5) various types of hernias (2 percent). Less than 1 percent of the children with identifiable health problems were under care before entering Health Start for the conditions detected in the program.

Recent data on a sample of Head Start children[1] indicate that Head Start children share similar types of medical problems (if one considers the results of the other screening tests). Of the five most frequently occuring problems reported for Head Start children (skin, vision, speech, tonsils and adenoids, and malnutrition), all but one (tonsils and adenoids) were the same as the most frequent problems in Health Start.

The number of tests a child received is related significantly to the project; for example, there were two projects (Fairmont and Portageville) in which over 90 percent of the children received seven required tests. The percent of children tested who had positive results is strikingly high in some cases. For example, in San Juan (Summer) and in Hammond, over half of those tested showed positive results on hematocrit or hemoglobin screening. In Boone, 29 out of 30 tested for intestinal parasites had positive results, while in Center, 100 percent of the 68 dental screening tests yielded positive results. The variation could result from the health status of the children, the interpretation of the tests results and/or the quality of the screening.[2]

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1. Data are for Head Start children in one OCD region and represent children in four states (Arkansas, New Mexico, Oklahoma and Texas). Source: Summary data for Phase II of the Head Start Health Planning Assessment Report, prepared by Region VI Health Liaison Specialist for reporting to AAP.

2. See discussion in Appendix F on measurement problems in Health Start screening program.

C. Treatment of Health Problems Found

Health Start projects varied greatly in their ability to complete treatment for the health problems detected. Data show that two projects completed no treatment, while another completed treatment for all the problems found. Table IV-2 shows that approximately three-fourths of the children needing dental treatment completed it before leaving Health Start, but only slightly over half of the children who were tested and needed medical treatment completed their medical work. Appendix D describes for each test the final treatment status of the children tested and needing treatment: the percent under previous care, the percent referred with no treatment begun, the percent with treatment started and not finished, the percent completing treatment, and the percent under care for a health problem needing continued surveillance or treatment.

A child identified through a positive test result as needing treatment could either be treated by the same agency that performed the test or referred to another agency for treatment. In the majority of the tests, those children needing treatment who were not referred to another agency tended to progress further toward completing the recommended treatment. Table IV-3 summarizes the statistically significant results involving comparisons of completion rates for treatment.

D. Arrangements for Future Health Care for Health Start Children

For future care, Health Start linked 28 percent of the children to the same medical services used during the program year and 31 percent to the same dental services. The remaining children were to receive "unknown" care or continue the providers used prior to Health Start. Table IV-4 shows that Medicaid will provide funds for medical care for 20 percent of the Health

Start children and for dental care for 16 percent. Other Health Starters planned to utilize migrant funds, health insurance, or other sources. Funds for future medical care were either unreported, "unknown,"[1] or non-existent for 70 percent of the Health Start children, and funds for future dental care were either unreported, not known, or non-existent for 77 percent of the children.

TABLE IV-3

PERCENT OF CHILDREN COMPLETING TREATMENT

Test	Percent of Children Needing Treatment Who Completed Treatment			
	Treated by Same Agency as Gave Test		Referred to Different Agency	
Tuberculin	0%	(N=5)	50%	(N=14)
Urinalysis	68%	(N=40)	63%	(N=120)
Hemoglobin	57%	(N=198)	3%	(N=124)
Hematocrit	62%	(N=292)	9%	(N=160)
Vision	66%	(N=56)	39%	(N=311)
Hearing	54%	(N=46)	35%	(N=364)
Medical	73%	(N=835)	38%	(N=1102)
Dental	77%	(N=796)	73%	(N=1631)

TABLE IV-4

PERCENT DISTRIBUTION OF CHILDREN BY
FUTURE SOURCE OF FUNDS FOR DENTAL AND MEDICAL CARE

Future Source	Percent Distribution of Children	
	Medical Funds	Dental Funds
Medicaid	20%	16%
Insurance	5	1
Migrant funds	1	1
Other	4	5
None	20	25
Unknown/not reported	50	52
	100% N = 9,832	100% N = 9,835

1. A category used in the Health Start project reporting system if the project did not know.

Table IV-5 indicates that about 30 percent of the children will continue to receive care from the same source made available during the Health Start program. Only a small fraction of Health Start children were introduced into a continuing arrangement for health care. Table IV-5 shows the joint distribution of the future availability of funds and services for dental and medical care.

TABLE IV-5

PERCENT DISTRIBUTION OF CHILDREN BY
FUTURE SOURCE OF SERVICES FOR DENTAL AND MEDICAL CARE

Future Source	Percent Distribution of Children	
	Medical Services	Dental Services
Same as during Health Start	28%	31%
Same as prior to Health Start	26	21
Other	4	3
None	6	10
Unknown/not reported	36	35
	100%	100%
	N = 9,830	N = 9,810

The availability of future funds and services was strongly dependent on the project itself. Although an average of 12.8 percent of the Health Start children had access to on-going comprehensive care, i.e., dental and medical funds and services, projects varied greatly in the number of children having future care assurance. For example, none of the children in eight projects had assurances of medical and dental funds and services, while over 50 percent of the children in three projects were in that category. Table IV-6 presents the distribution of the availability of future medical and dental funds and services for the Health Start children.

TABLE IV-6

PERCENT DISTRIBUTION OF CHILDREN BY KNOWN AVAILABILITY OF FUNDS AND SERVICES FOR FUTURE MEDICAL AND DENTAL CARE

AVAILABILITY OF FUNDS		SERVICE	Future Dental Care: YES / Yes	Future Dental Care: YES / No	Future Dental Care: NO / Yes	Future Dental Care: NO / No	Total
FUTURE MEDICAL CARE	YES	Yes	12.8	1.6	2.9	2.9	20.2%
		No	4.7	1.8	0.1	2.2	8.8
	NO	Yes	1.7	-	28.8	2.9	33.4
		No	0.1	0.1	4.0	33.4	37.6
TOTAL			19.3%	3.5%	35.8%	41.4%	100%

YES = available and reported as such (includes the categories "medicaid, insurance, migrant funds, and others" for funds and for services the categories "same as during or prior to Health Start, and others" as used in Tables IV-4 and IV-5).

NO = not reported or reported as not available or unknown.

About two out of every three children had their records from Health Start transmitted to another agency. Usually the records were sent to a local public health department or a Head Start. Table IV-7 indicates where the children's health records were sent.

TABLE IV-7

TRANSMITTAL OF HEALTH RECORDS

Transmitted to	Percent of Children
Nowhere	36%
Local school	9
Local public health department	26
Clinic	9
Parents	--
Head Start	13
Other	5
Unknown	2
	100%

Projects varied considerably in their ability to transmit records. For example, three projects did not transmit any records while eight projects transmitted records for 100 percent of the enrolled children.

E. Serving Migrants[1]

In general migrant children received fewer services than did other Health Start children. Migrant projects had generally below average performance and tended to have low per child expenditures. Migrants were much less likely to be eligible for Medicaid, and less likely to have had previous medical or dental care. They received fewer tests, even though in two of the three migrant projects the average number of abnormal conditions per test was very high. Because of their mobility, migrants were less likely to have assurances of future health care.

1. See Chapters VI and VIII for further discussion of migrant children.

F. Conclusions

1. Of the 10,000 children targeted to be enrolled in the 1972-73 program, Health Start projects enrolled 9,835.

2. Projects varied in the number of required and optional tests given to the children; however, the average enrolled child received over four of the required seven tests and approximately one optional test.

3. The most prevalent health problem found in children over three years old was dental disease. Over half of the children receiving dental exams needed some type of restorative treatment.

4. A comparison of Health Start and comparable Head Start data revealed that both groups of children experienced similar types of health problems. That is, in both programs, some of the most common health problems reported were skin, vision, speech, tonsils and adenoids, and malnutrition.

5. Approximately three-fourths of the Health Start children identified as needing dental treatment completed it, while approximately half of the children needing medical treatment finished their care. Part of the explanation for the lower medical "completion rate" is that over one-fifth of the children receiving a medical exam were found to have medical conditions for which treatment could not be completed within 12 months. These children, however, were introduced into on-going care arrangements.

6. Less than 1 percent of the children tested and found to have health problems were under care for those problems before entering Health Start. Therefore, Health Start provided care to children who obviously were in need of treatment.

7. Success in arranging for future health care needs of the children was highly dependent on the project. Approximately 13 percent of the Health Start children were assured of on-going comprehensive care (defined here as

having a source of funds to pay for medical and dental care in addition to medical and dental providers who were willing to take the child). Short of the complete care (funds and services), Health Start linked 28 percent of the children to some medical providers used in Health Start and 31 percent to Health Start dental providers. The rest of the children would use providers available to them before Health Start or were not known to have access to health services after Health Start.

8. Medicaid was the major source of funds for future care: 20 percent of the children were expected to be covered by Medicaid for medical services and 16 percent for dental care. A striking finding: approximately one-half of the children were not known to have any source of payment for future health care.

9. Migrant children received fewer services than other children, tended to have more health problems, were less likely to be eligible for Medicaid, and had less opportunity for future care.

CHAPTER V

MEETING PROGRAM GOALS:
DELIVERING HEALTH EDUCATION

A. Health Education Objectives

Since the beginning of Health Start, program guidelines required that health education be given to children, parents, and staff. In the 1971-72 program year, the guidelines were not specific, merely calling for some type of health instruction to be delivered. Consequently, the 1971-72 evaluation showed that educational components received little emphasis and that--due to lack of materials or training--instruction, when it occurred, was the product of project initiative.

Because of these first year findings, the 1972-73 guidelines spelled out more clearly the essential topics to be covered and the requirement that health education "be given equal priority with the delivery of health services."[1] Health Start education requirements included instruction to parents and children on personal hygiene, oral hygiene (including the proper use of a soft toothbrush and unwaxed dental floss), nutrition, and safety and accident prevention. "Consumer health education," specifically aimed at parents, was to include ways to determine needs of children in emergencies and the use of existing health facilities and available health funds, thus ensuring continuity of care.

Guidelines also specified that health education for parents and children should be given in both group and individual sessions.

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1. See Appendix A for 1972-73 Health Start guidelines.

It was recommended that projects offer group meetings "during the summer impact period" and one-to-one encounters throughout the year.

B. Collecting the Data

Evaluators gathered data for the evaluation of health education from four major sources: (1) Urban Institute site visits, made in late summer and fall of 1972, which of course revealed more about project plans than resultant activities, (2) a telephone questionnaire in March of 1973 which identified the actual activities within a project's health education component, (3) the Quarterly Health Reports which included statistics about the number of parent and child health education encounters, and (4) Health Start expenditure forms which were designed to include per child costs for health education delivery.

C. Overview of Project Components: "State of the Art" of Health Education in Health Start

The collected data helped in determining the degree of emphasis given health education by each project. With the exception of eight projects that seemed to develop special or broad-based activities, most Health Start projects delivered health education on an informal, casual, and sporadic basis. The "state of the art" of health education in the 1972-73 program year remained relatively undeveloped and unsophisticated.[1]

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1. As mentioned in Chapter II, The Urban Institute planned to conduct a parent survey to determine the impact of health education on the children. Because of methodological constraints and the expected cost and value of the information, on approval from the OCD project monitor, the parent survey was eliminated from the study. See Appendix B for discussion of methodological problems.

1. Type of Health Education Delivered

In spite of the fact that 17 health coordinators in the Spring of 1973 replied "yes" to the question "Do you have a formal health education component?",[1] their definitions of health education seemed to vary greatly. Several coordinators were unsure of the topics covered by the day care centers in which Health Starters were enrolled. Other coordinators considered their health education component to be what a physician, dentist, or nurse told a patient as part of regular office routine--such as the explanation of a procedure or the results of a test. Still other projects labeled as "health education" the rather unsystematic meetings of staff members with parents and children in cars on the way to a doctor's office or in the examining rooms of a diagnostic clinic.

Table V-1 presents data on the scope of health education activities. Two of the 30 Health Start projects claimed to have offered both group and individual health education sessions to parents and children. The remaining projects with organized health education components offered variations of the Health Start guideline requirements; for example, eight projects scheduled only group sessions and two projects only one-to-one encounters.

2. Topics Covered

Variation also occurred in the topics covered by the projects. Ten projects, either by design or because of a lack of resources, devoted most of their health education time to children with known health problems or to a particular health issue such as strep throat, dental hygiene, or

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1. Whenever a project covered only one topic (or only a few) on a limited or sporadic basis or when health education took place due to non-Health Start efforts, evaluators considered the project as one with no formal health education.

TABLE V-1--HEALTH EDUCATION COMPONENTS FOR ALL HEALTH START PROJECTS

REGION		Projects With Organized Health Education Components	Effort Directed at Specific Health Problems	TYPE OF SESSIONS: Parent: Group	Parent: One-to-One	Child: Group	Child: One-to-One
I	Pawtucket, R.I.						
	Penobscot, Me.	X	X		X		X
II	Toms River, N.J.	X		X			
	Albion, N.Y.	X			X		X
	San Juan, P.R. (Summer)						
	(Full Year)						
III	Baltimore, Md.	X		X			
	Fairmont, W.Va. (Marion)	X		X			
	(Barbour)						
IV	Boone, N.C.	X	X	X		X	
	Orlando, Fla.						
	Charleston, S.C.						
	West Palm Beach, Fla.						
V	Flint, Mich.	X	X	X		X	
	Mora, Minn.						
	Dayton, Ohio	X				X	
VI	Albuquerque, N.M.	X	X	X		X	
	Oklahoma City, Okla.	X	X	X	X	X	
	Grants, N.M.						
	Galveston, Tex.						
	Hammond, La.						
VII	Portageville, Mo.	X		X		X	X
	Carroll, Iowa	X		X	X		X
VIII	Center, Colo.	X	X	X	X		X
	Cedar City, Utah	X	X	X	X	X	
IX	Merced, Calif.	X		X			
X	Hillsboro, Ore.	X	X	X	X	X	X
	Medford, Ore.	X	X	X	X	X	
	Coos Bay, Ore.	X	X	X	X	X	X
IMPD	The Dalles, Ore.						
	Amarillo, Tex.						
	Ft. Lauderdale, Fla.						

nutrition. Table V-2 shows that, at almost all projects, health education for children included instruction in proper toothbrushing yet, at most projects, no instruction on the use of dental floss. Seven projects gave a series of demonstrations of handwashing, and 10 projects focused on nutrition education.

Guidelines suggested that health education for parents be focused on "consumer health education." Fourteen projects reported that they instructed parents in the use of community health resources. Although most parents of the children with serious health problems were likely to receive individual attention and information concerning health facilities, only eight Health Start projects scheduled such sessions regardless of a child's health status. Nine projects offered no consumer health education; two of them said, "there's little available," and two others said "everyone knows and uses them [local resources] anyway."

3. Health Education Encounters

Projects varied greatly in both the percentage of children and parents who had at least one health education encounter and in the average number of health education sessions given. One project reported no health education encounters with either parents or children, while another claimed that over 98 percent of the parents and children received some form of health education. Approximately 55 percent of the Head Start children and 64 percent of the parents had at least one health education encounter. The average number of health education encounters across all projects was 1.3 for children and 1.6 for parents.[1] The fact that little emphasis was given to health education could account for the fact that only four projects were able to estimate the per child expenditures allocated for delivering health education.

1. Source: Health Start Quarterly Health Reports, June 1973.

TABLE V-2--HEALTH EDUCATION TOPICS COVERED BY HEALTH START PROJECTS

REGION		Toothbrushing	Use of Dental Floss	Personal Hygiene	Accident Prevention/ Safety	Nutrition	Use of Health Services
I	Pawtucket, R.I.	X					
	Penobscot, Me.	X		X	X	X	X
II	Toms River, N.J.						X*
	Albion, N.Y.				X		X*
	San Juan, P.R. (Summer)						X
	(Full Year)						X
III	Baltimore, Md.	X					X*
	Fairmont, W.Va. (Marion)				X	X	X
	(Barbour)					X	
IV	Boone, N.C.	X	X			X	X*
	Orlando, Fla.						
	Charleston, S.C.						X*
	West Palm Beach, Fla.						
V	Flint, Mich.	X	X	X		X	
	Mora, Minn.						X*
	Dayton, Ohio	X	X		X	X	X
VI	Albuquerque, N.M.	X					
	Oklahoma City, Okla.	X		X	X		X
	Grants, N.M.						X
	Galveston, Tex.	X					X*
	Hammond, La.	X					
VII	Portageville, Mo.	X			X	X	X
	Carroll, Iowa	X	X			X	
VIII	Center, Colo.	X		X		X	
	Cedar City, Utah	X	X	X	X	X	X
IX	Merced, Calif.	X					
X	Hillsboro, Ore.	X	X				X
	Medford, Ore.	X	X			X	X
	Coos Bay, Ore.	X	X	X		X	X
IMPD	The Dalles, Ore.						X*
	Amarillo, Tex.						
	Ft. Lauderdale, Fla.						X

*Parents told about resources only if health problems found.

D. Reasons for Weak Components

Projects reported and evaluators observed a variety of reasons why most Health Start projects did not make health education a high priority.

1. Involvement of Parents

Almost half of the coordinators cited poor parent attendance at meetings, while a number of coordinators reported general parental indifference to matters of child health as major difficulties in delivering health education. Others said that they simply accepted the fact that parental involvement--in groups or as individuals--could not be expected of exhausted farmworkers or of rural families isolated by lack of transportation or by snow.

2. Ages of Children

Most coordinators felt that the age of the children often hampered the delivery of health education. It was difficult for them not only to ensure that learning was taking place but to hold the attention of pre-schoolers over a suitable period of time. Also, some found it hard to plan a single health education program that would be suitable for children ranging in age from birth to six years.

3. Staffing and Materials

Although no coordinators reported that lack of staff training was a problem, four projects identified lack of staff expertise as a major problem. Five staffs complained that they were hampered by a shortage of appropriate health education materials. Eight projects indicated that they were understaffed in personnel trained to give health instruction. One coordinator said that recruitment, scheduling appointments, and screening were inevitably "done at the expense of health education."

4. Non-Quantitative Results

Staff workers and evaluators alike are often frustrated in determining the effects of health education activities. One coordinator regretted that, "You can't evaluate the impact of health education on children." Admittedly, health records can list the immunizations given and count the caries repaired, but they cannot help the staff measure the effects of a health education program on a child's health or the behavioral, informational, or attitudinal changes in parents and children. Not surprisingly, when staff time was limited, the first activity to be cut was often health education.

E. Projects With Promising Health Education Components

Eight projects represented particularly promising health education approaches. Their instructional components were well organized and interesting enough to merit more attention than given them in Table V-1. They are the Health Starts of Penobscot, Maine; Portageville, Missouri; Center, Colorado; Cedar City, Utah; Merced, California; Hillsboro, Oregon; Medford, Oregon; and Coos Bay, Oregon.

1. Penobscot, Maine

To reach the parents and children of rural Penobscot and Piscataquis Counties, one of Health Start's three nurses or five paraprofessional health aides tried to make regular visits to all enrollees' homes. Because over one-fourth of the families were not reached, the average number of parent and child encounters was low (2.7). When families were reached, however, the living room became a family classroom for discussing anemia, incubation periods of childhood diseases and rashes, dental hygiene, the prevention of lead poisoning, the development of motor coordination, and emergency first aid.

The Health Start workers emphasized both the value of preventive care and "consumer" health education, informing parents of available facilities and eligibilities for special services. They not only itemized all area health resources but ensured that necessary referrals and clinic visits were made.

To further involve parents, staff members enlisted their help in the design of educational materials. Together they developed a curriculum based, in part, on ideas from Healthy, That's Me, a guide created for Head Start use consisting of a teacher's manual containing five class study units, seven parent handbooks, and a booklet for children.

Staff education was regular and comprehensive. The five aides received six months of in-the-field training from Operation Mainstream, a community action group funded by the Department of Labor. They also attended weekly in-service sessions with such specialists as a psychologist from Bangor's Counseling Center, the nurse-director of a mental retardation program, a dentist sent by Augusta's Bureau of Human Resources to speak on oral hygiene, a nutritionist from the University of Maine, and even local firemen demonstrating techniques of first aid.

2. Portageville, Missouri

Even before the Portageville program got underway, local Head Start-Health Start staffs received intensive instruction in various aspects of health education. Soon after, teachers, nurses, and health aides developed a booklet at a fifth grade reading level--telling parents how to introduce new foods, when to take a child to a doctor, and what to do in emergencies.

Health Start focused some of its parent group sessions on health "consumer" problems: meal-planning and basic nutrition, the use of government surpluses, and familiarization with local resources. But the parents also suggested a number of topics that were later covered by discussion and films: dental care, immunizations, first aid, sickle cell anemia screening, and readying a child for school. Perhaps for these reasons interest in the program ran high. The coordinator reported that approximately 60 percent of the parents showed up at an average meeting, in spite of tiring field work and blistering temperatures.

An average of 4.6 one-to-one health education sessions took place with parents in their homes or at the center, and usually these related to the child's particular problem or treatment. But staff members also delivered basic health information using such techniques as a bingo game and a crossword puzzle based on facts of health or nutrition. Children were reached in one-to-one sessions that covered accident prevention, proper toothbrushing and personal hygiene. On three occasions, the children met in groups to learn the "whys" of immunization, the importance of dental care, and what happens when you visit the doctor. The Portageville children averaged about 5.4 health education sessions, more than any other reported project average.

3. Center, Colorado

During this program's second year, 90 Health Start families took part in an "experiment" sponsored by the Colorado Department of Health, Head Start, the Colorado Heart Associations's Committee on Rheumatic Fever, the Strep Disease Section of the Center for Disease Control, and the U.S. Public Health Strep Lab at Fort Collins. Its purpose was to determine the

impact of health education on the detection and control of a particular problem--"strep throat." To gather information about this potential cause of kidney disease and rheumatic fever, Center's health coordinator divided the families into three groups of almost identical composition.

The plan called for all groups to be cultured three times--in September, 1972 and in January and April, 1973. Those in one group would receive no other systematic attention, while the children under 18 in a second group would be cultured every three weeks, symptomatic or not. The third group would be cultured on demand, but, more importantly, would be given intensive education about strep infection from health aides on a continuous basis.

The coordinator planned to compute the data from regularly-kept illness histories of every family at the end of the Health Start year. However, because of a cut-back in Public Health Department funds, these data will not be tabulated, and the results of the experiment will not be known.

Early in the year, health aides polled the parents to determine topics for group sessions, and often these suggestions became the agenda of later meetings on first aid, family planning, nutrition, eye care, cognitive stimulation, normal childhood development, and disease danger signals. "Veteran" parents of the program's first year, as well as a few grandparents, joined second year parents at large group meetings. The popularity of these gatherings was due not only to efficient publicity but to the lack of "entertainment" elsewhere. Center has no movie theater, no community center, and, with at least 52 consecutive days of below zero weather, little outdoor recreation.

Perhaps the success in involving parents should also be credited to the health aides--all bi-lingual, Spanish-surnamed, local women who more or less "adopted" their 20 to 25 assigned families and made an average of five visits to the homes for everything from diaper rash to strep infection. Committed to their own professional development, the four women have, during the course of the Health Start program, gained their high school equivalency diplomas, and this winter they enrolled at Adams State College in Alamosa for a course in nutrition.

4. Cedar City, Utah

The Cedar City project utilized a variety of materials and some unique resources to provide health education for parents and children. Brigham Young University offered Health Start parents an unusual opportunity to join a program originally designed for student wives. At a cost of only two dollars an academic quarter, almost 25 percent of the Health Start mothers took up the offer to attend courses in homemaking, nutrition, child care, and child development.

The topics for group discussion and instruction at the project level were determined by Health Start parents (in an informal survey), by the Office of Navajo Economic Opportunity, and by a project advisory board (made up of parents, community representatives, college personnel, physicians, and even a speech and hearing therapist). Consequently, sessions covered such special interest topics as pre-natal and infant care, normal growth patterns, drunk driving, and the importance of exercise as well as such basic areas as nutrition, personal hygiene, dental health, and safety.

To link parents to local resources, Health Start staff workers kept them informed about eligibility requirements and available resources, such as the services provided for Indian migrants through a local Navajo reservation. For individuals and groups, Health Start drew upon a variety of health education materials: pamphlets from Head Start, the American Dental Association, and the Utah Dairy Council; the Healthy, That's Me teacher's manual, and films from the Media Center of Brigham Young University.

5. Merced, California

By operating out of Head Start facilities in each of the five communities it served, Health Start had access to a variety of health education materials--some provided by the Red Cross, the American Academy of Pediatrics, the Head Start Rainbow series, and even pharmaceutical companies.

Although parent group sessions covered such topics as immunizations, first aid, personal hygiene, sickle cell anemia, family planning, nutrition, and the use of community services, Health Start directed special attention to preventive dentistry. Tutor-aides visited the homes of over half of the enrollees at least twice during the year. They not only instructed parents in the realtionship of good nutrition to dental health but also showed them how to teach their children the techniques of proper brushing and flossing.

At one point, dental students from Stanislaus State College set up preventive dentistry "shows" for the children with charts, acting-out games, and even puppets. Throughout the year, nurses, physicians, and Head Start nutritionists also reinforced the health education program of the regular staff.

6. Hillsboro, Oregon

For many Hillsboro parents, health was something they thought about only when children had serious problems. Consequently, Health Start found it difficult to stimulate their interest in keeping medical appointments, let alone their participation in evening meetings. After poor turn-outs for group sessions on dental care, sex education, and nutrition, the staff shifted its emphasis to home visits and one-to-one counseling.

Before this year's program got underway, Hillsboro's health coordinator set up--for her carefully selected aides--training in everything from proper handwashing and first-aid to the detection of "battered child." During the year, because Health Starters met in a day care setting, staff workers found it easy to offer the children a group dental program. To spur interest in plaque control, they created catchy slogan buttons for the children to wear and sponsored group "brush-ins." In what became Health Start's most effective teaching moments, these same aides visited the homes and passed out toothbrushes, dental floss, disclosing tablets, a tooth chart, a mouth mirror, and chewable fluoride tablets.

Not surprisingly, most health instruction took place in one-to-one encounters between families and the project aides, public health nurses, students, a dental hygienist, and the staffs of private agencies. In these individual meetings, outreach workers distributed Proctor and Gamble's "A New Plan to Keep Your Teeth for a Lifetime" and some other materials printed in both Spanish and English. They also assisted the families in identifying local resources, enrolling in food cooperatives, and watching out for such seasonal hazards as poisonous mistletoe. Because of poor early response, the actual average number of encounters was low--1.7 for parents and 2.6 for children.

When a nutritional study revealed that many Health Start families were eating poorly, state and local health department nutritionists stepped in to tailor plans for particular families, indicating what foods might upgrade their menus. With the diagnoses in hand, aides from Health Start and the Department of Agriculture visited the homes, and many parents, expressing interest in what they might be missing, even asked for a follow-up study to measure their later improvement. These experiences indicate how the Hillsboro program consistently saw nutrition and dental hygiene as high health education priorities.

7. Medford, Oregon

Most of Medford's Health Starters were under four years of age; consequently, the staff directed its formal health education program at parents in both group and individual meetings. After attendance problems in the first year, group sessions this year seemed to generate more interest. Health aides, a licensed practical nurse, a nutritionist, a dentist, Planned Parenthood spokesmen, and VISTA volunteers gave programs on health and safety, child growth and development, family planning, dental care, and changing family roles.

One-to-one meetings allowed the staff to give personalized attention to such problems as dental hygiene. Staff aides, trained in preventive measures at a regional dental workshop, visited the homes on an average of three times and taught proper brushing, flossing, and the use of disclosing tablets. Also local dentists cooperated by surveying patients both before and after treatment to determine any changes in their knowledge of plaque control.

Health Start workers provided parents with a variety of pamphlets from home extension services, Mead-Johnson Pharmaceutical Company, the public health department, and Planned Parenthood. Often they carried a cassette projector into the homes and showed a dental film strip. At group sessions, they utilized a TV-sized screen that plugs into a wall socket, showed video tapes on child care, and distributed matching manuals for parents to keep.[1] Due to the successful use of their video equipment, the manufacturers have offered to donate a smaller machine for home viewings and a series of 12 tapes on health and safety, immunizations, and common childhood health problems.

8. Coos Bay, Oregon

Health Start staff workers and parents not only utilized pamphlets from the Department of Agriculture but created their own handbook. Parents helped select the topics to be covered and also edited and typed the final manuscript. Financed by advertising from local businesses, the handbook includes coloring pages and even pullout sections for children.

One-to-one counseling began when parents first accompanied their children to the preliminary screenings and learned about other local resources. Later, each Health Start family received an average of three home visits from staff aides who demonstrated the correct use of a toothbrush and dental floss. At that time, children received special instruction in dental and personal hygiene and in nutrition.

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1. This is the ROCOM Child Care Curriculum published by Hollman-LaRoche, Inc., Nutley, New Jersey.

At group sessions, parents heard a dental consultant, a dietician, a pediatrician, a fire inspector, the director of a food stamp program, and even instructors from a local college. They listened to talks on dental care, food preparation and nutrition, preventive medicine, fire prevention, the welfare system and food stamps, tips on shopping, grooming, and housekeeping, and the difficulties of raising and disciplining a child.

These eight projects provide insights into some promising aspects of health education delivery. All of these projects had above average parent and child participation, five of them gave intensive staff training, and six concentrated on health problems found. With the exception of the Merced project, all were in their second year of operation, and five of the seven second-year projects were headed by "veteran" coordinators. The successes in this past year are encouraging, for five of the eight highly assessed Health Starts were not identified as such at mid-year.

The remaining 22 projects had less developed health education components, if any at all. Without further evidence, it is not likely that much health education instruction took place there with parents or children.

F. Conclusions

Health Education, as in the first year Health Start program, was relatively unsophisticated and unorganized. With the exception of eight projects, most Health Start projects delivered health education on an informal, casual and sporadic basis. Projects varied on the emphasis given to the topics required by the guidelines. Ten projects, either by design or lack of resources, limited their health education efforts primarily to children with known health problems or to particular health problems prevalent in the children in the area.

CHAPTER VI

FACTORS AFFECTING HEALTH START PROJECT RESULTS

This chapter addresses, to the extent possible, the relationships between project results (primarily in providing health care) with project characteristics, community characteristics, and availability of resources.

A. Health Start Project Characteristics

1. Description of Selected Project Characteristics

What follows is a detailed description of selected 1972-73 Health Start project characteristics. It is presented as a framework for analyzing the effectiveness of different project approaches. The characteristics discussed here are: planning activities and decisions, the proposal review process, outreach and recruitment, staffing, and health service components. Descriptions of projects' health services coordination efforts were presented in Chapter III.

a. Planning

Although a Health Start proposal is in itself a kind of plan, the real working plans of any program are the formulated goals that result in a developed and implemented system of operations. From site visits and project reports evaluators gathered information about how much time was spent in planning, what local agencies and providers were contacted for support, what children would be reached and with what services, what problems occurred at the "start-up" of a program, what regional and national help was requested and/or received, and how refunded and newly funded projects differed in their planning.

(1) Length of Time Spent in Planning[1]

The amount of time spent in planning varied dramatically from project to project. There were two reasons for this: one, differences in the dates when projects were notified of funding or of the program itself by the regional and the national Offices of Child Development and, two, the timetables of local planning boards or health coordinators.

The 1971-72 Health Start evaluation indicated that planners had available from as little as three days to as much as three months for planning--the median time being about five weeks. The same variation occurred in the 1972-73 program--from as little as one day to as much as four and a half months. Some projects got a head start on planning because they had 1971-72 Health Start grants and began planning even before the announcement of the second year program. Others already had a plan for a child health program or component either because it had been previously submitted to another funding agency or because it was essentially the same plan as one for a first year Health Start or a Head Start in the same community.

(2) Agreements Reached With Agencies and Providers in Planning Phase

Only eight projects reported having written agreements from negotiations with agencies or health service providers about screening to be done, tests to be given, fees for services, and staff time to be provided to assist with health education. Eleven projects had, at the beginning of the program year, general service agreements with agencies and providers for screening. Five projects received statements of general

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1. The Urban Institute defined planning to include the activities that took place that led to the writing of the Health Start proposal. See Health Start Analysis Plan for the Second Program Year (Urban Institute Working Paper 964-2), for specific questions in the Health Start Field Collection Forms.

support, while others assumed that they would use the same working arrangements as existed in the 1971-72 Health Start program or in the existing Head Start program.[1]

(3) What Was Planned

(a) Limiting the Target Population

When planning its Health Start program, each project had to decide the number and the specific kinds of children it would serve. Several factors determined the number of the pre-school children to be enrolled by each project: the amount of money granted (six projects), the estimated number of Head Start siblings in the area (seven), the previous year's experience (five), pre-school population estimates (three), availability of area health resources (two), the number of migrants in the area (two), and the number of enrolled Head Start children (one).[2] Less clear was the rationale cited by four projects; for example, one project "just decided."

Target populations were chosen in a variety of ways--often on the basis of health and economic needs but also on the basis of previous identifications made by Head Start, school systems, public health departments, and other agencies. Data collected in surveys made by the Census Bureau, local Head Starts, Community Action Agencies, and other agencies also assisted in the selection of target populations. Although the groups to be served were usually specifically defined, as in the case of four projects funded to work exclusively with migrants, many Health Starts still suffered from problems of outreach.

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1. Specific planning data for the Baltimore project were not available due to inaccessibility of the staff member in charge of planning.

2. The Amarillo project misunderstood the purpose of Health Start and submitted a proposal for what they thought was a supplementary grant for Head Start health services. They did not find out until the coordinators' conference (after they were funded) that children enrolled in Head Start could not be served in the Health Start program.

(b) Optional Tests and Components

Seventeen projects planned to give at least one test in addition to the seven tests required.[1] In the area of mental health, two projects planned to offer psychological tests for early detection and treatment of problems in children, and one project hoped to test parents to identify problems which might eventually affect the children. Seven projects planned to use the Denver Developmental Screening Test (DDST) to spot mental retardation and other problems not readily apparent.

Five projects hoped to include speech screening for detecting potential problems and the need for early therapy. But, in a number of cases, an area's particular health problem determined the planning of an additional special test. Because they planned to enroll a large number of blacks, nine projects added sickle cell anemia tests to their schedule. Because of high streptococcal infection rates in the communities to be served, three projects decided to include strep culturing. And because many enrollees lived in old houses, seven projects planned to administer tests for lead poisoning.

(c) Optional Components

Most Health Start projects planned some program components not required by the guidelines, for example, family planning or education and care of mentally handicapped children. Usually these extra services tended to encourage the participation of families as families. Twenty-one projects offered transportation for parents and children to screening sessions, follow-up care, and health education meetings--often a crucial service in areas with little or no public transportation. Six projects offered baby-sitters to allow parents to attend screening and health education sessions.

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1. The seven tests required by the Health Start guidelines were hematocrit/hemoglobin analysis, tuberculin, vision, and hearing tests, urinalysis, a medical evaluation, and a dental evaluation.

Seven projects planned to provide meals--one because it wished to include nutrition counseling, one because it had a day care operation similar to Head Start, and others because participants traveled great distances to attend.

(4) Proposal Review

Review of a project proposal at the local and the regional level is an important influence on planning. All but four Health Start projects sought input from local officials such as directors and program specialists of the Community Action Program, directors and staff of Head Start, parent advisory committees of Head Start, parents and staff of Health Start, consultants from the American Academy of Pediatrics, county health departments, directors from the Department of Social Services, the Board of Education, community councils, local nutritionists, college administrators, dentists and physicians.

Because of local review, nine projects readjusted budget requests or changed their proposals to serve different target populations, such as Head Start siblings, particular ethnic groups, or handicapped children. Because of HEW regional office reviews, seven projects received budget changes that affected specific line items as well as total proposed expenditures. Regional reviewers also attached special grant conditions, such as a directive to include Indians, to seven project proposals.

(5) Project Start-Up[1]

Project start-up problems occurred at 18 projects--several because of trouble in staffing their program and 12 because of late funding.

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1. Start-up is defined as the period from the announcement of the grant award until the project began some project activity.

Although Office of Child Development regional offices helped resolve late funding problems at some projects, other projects waited for the money to arrive before beginning operations.

The amount of time that elapsed between the start of operations and the enrollment of the first child varied from "no time lapse" in some cases to three months in others. However, most projects reported a time lag of less than one month. The amount of time that elapsed between the first enrollment and the first screening varied from zero days[1] to seven months.

The projects scheduled a variety of simultaneous activities during this start-up period--outreach and recruitment, negotiation of contracts for services, the setting up of offices, and staff orientation and training. Later, after children had been enrolled and before screening got underway, projects scheduled parent meetings, finished their work with first year children, took medical histories, and acquainted new children with Health Start activities.

(6) Project Contact With Regional and National OCD Staffs During Planning Period

Through letters and site visits, the local, regional, and national levels of Health Start kept in touch. Ten projects wrote to their regional offices, reporting new project statistics or requesting information about aspects of the program such as training sessions, evaluation of the previous year's work, or clarification of budget items or funding dates. Other projects wrote requesting information about using carry-over funds, coordinating resources, 1972 budget revisions, or the dates of site-visits. In all, 11 projects report receiving written communications from their regional offices before beginning operations of the 1972-73 activities.

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1. A few projects, anticipating the second year of Health Start, had enrolled children for the 1972 program some months before it began.

OCD regional office representatives visited 11 projects to monitor the operations, to participate in negotiations for local funding and services, and to assist staff training programs. OCD national staff representatives visited several projects: the National Health Start Director visited three and instructed two project coordinators in recordkeeping and general program operations, and the acting director of Head Start Health Services also visited several projects. Because of a regional level request, a headquarters staff member of Social and Rehabilitation Services (SRS) visited one Health Start site to help in negotiations with the state (Title XIX) Medicaid agency about Early Periodic Screening, Diagnosis, and Treatment (EPSDT).

(7) The Influence of First Year Experience on Second Year Planning

A number of projects reviewed their first year operations and evaluated their local impact in the process of planning their second year proposals. Yet, having been a first year Health Start did not necessarily guarantee that needed revisions or innovations would be made for the program's second year.

At three refunded projects, planning simply amounted to the writing of the Health Start proposal. Other projects, having learned from experience, made changes that were to improve project effectiveness. For example, the San Juan, Puerto Rico, project shifted its service from a population within walking distance of a public health center to a population with severe health problems, in dire poverty, and with no care available nearby. Because planners felt that little had been accomplished with their original day care structure, the Orlando, Florida, project dropped its center and the resources to run it: health education director, student interns, transportation, and meals. Penobscot, Maine, dropped its summer day camp format (which had served a large percentage of the Indian population) and

expanded its small "satellite" clinic program into a structure of 25 "visiting" clinics (which served a mostly white, rural population) in the second year.

Revisions of budgets also reflected the changed emphasis of a number of projects. The Hillsboro, Oregon, Health Start allocated more funds the second year for strengthening its health education component and providing instruction at the time of screening. The Center, Colorado project utilized more money for transportation and for what seemed to have been a special first year need--psychological testing. Staff needs dictated budget changes at three projects--in Medford, Oregon, an increased staff size for more efficiency; in Dayton, Ohio, additional staff time in the budget (its 1971 coordinator's salary had been an "in-kind" contribution); and in Tom's River, New Jersey, the addition of one more staff members to facilitate operations.

b. Staffing

(1) The Coordinator

Health Start guidelines required that each project secure a health coordinator to satisfy certain minimum requirements. Preferably "this individual should be . . . a registered nurse, . . . knowledgeable in the use of community, state, and federal resources and . . . [with] experience in administration, teaching, and counseling." However, some program plans might have justified employing a person knowledgeable only in community health resources as long as he or she had a minimum of two years experience in medical service administration. Also, a person "familiar with local Title XIX operations, including eligibility certification, could be considered a medical service administrator for the purpose of the grant."[1]

1. See Appendix A, page 2.

(2) Time Commitment

Although a Health Start project coordinator was to be employed for a full year, he or she could have worked either full-time or part-time on the Health Start program. Guidelines encouraged part-time employment when Health Start did not demand full-time service and when the individual's other work enhanced the Health Start program. Nineteen projects employed full-time coordinators, all hired near the beginning of the program year. Twelve projects had part-time coordinators, six of them shared with Head Start and three hired at least two months after the program year began. At five projects, staff turnover meant that more than one coordinator served during 1972-73.

(3) Background of Coordinators

Four of the 31 projects were headed by men and 15 by veterans of a 1971-72 Health Start.[1] One coordinator was a pediatric nurse practitioner and 24 were registered nurses with clinical or public health experience. However, they also included a former welfare administrator, former teachers, a physical education graduate, and several Roman Catholic nuns.

(4) Coordinators' Non-Health Care Tasks

In spite of the fact that most of the coordinators had backgrounds in health care, they claimed that the majority of their work was related to something other than direct health service delivery. (Six coordinators reported that they administered vision tests, but this was the highest number to give any single screening test or immunization.) Seven

1. For evaluation purposes, we have considered the Fairmont grantee as having two projects because operations existed in two different locations with the health coordinators in the two areas using slightly different program approaches. We have also divided the San Juan Health Start into two projects in most of our analysis, because two separate groups of children were served: those enrolled in the summer program were terminated at the end of the summer session, and a second group of children replaced them in the fall 1972.

coordinators helped to write program proposals, and 19 spent time negotiating with local agencies for resources. All coordinators reported that they did general record-keeping, and 11 took medical histories. Nineteen worked on some aspect of their health education component, 16 on scheduling the screening and treatment sessions, and 14 on outreach.

(5) Staff Size

The two projects of Fairmont, West Virginia, operated with the smallest staffs, each with only a health coordinator. The Hammond, Louisiana project had the largest staff[1] (218)--a coordinator, a project director, two nutrition directors, five secretaries, two center directors, five health aides, 15 head teachers, 45 teachers, 60 teacher's aides, 15 cooks, 30 cook's helpers, five custodians, and 32 bus drivers. However, this large staff functioned only during a six-week impact classroom-clinic. For the balance of the year, responsibility for follow-up care fell to the full-time health coordinator, one aide, and a secretary--all operating out of a small office in the annex of an active grade school. More indicative of Health Start staff size, however, is the fact that the median number of staff workers across all projects (excluding Hammond) was six.

(6) At most projects (26), health or social aides assisted the work of the project, and, at 16 sites, Health Start grants covered their salaries. The aides' duties included outreach and recruitment, taking medical histories, and giving vision tests. Aides also filled in as health education assistants, appointment "secretaries," and drivers to pick up children for screening and treatment sessions.

c. Outreach and Recruitment

Almost half of the children were enrolled door-to-door, a small percentage of whom were found first through agency referrals. The second

1. Hammond was a "converted" Head Start and continued to operate a summer Head Start program.

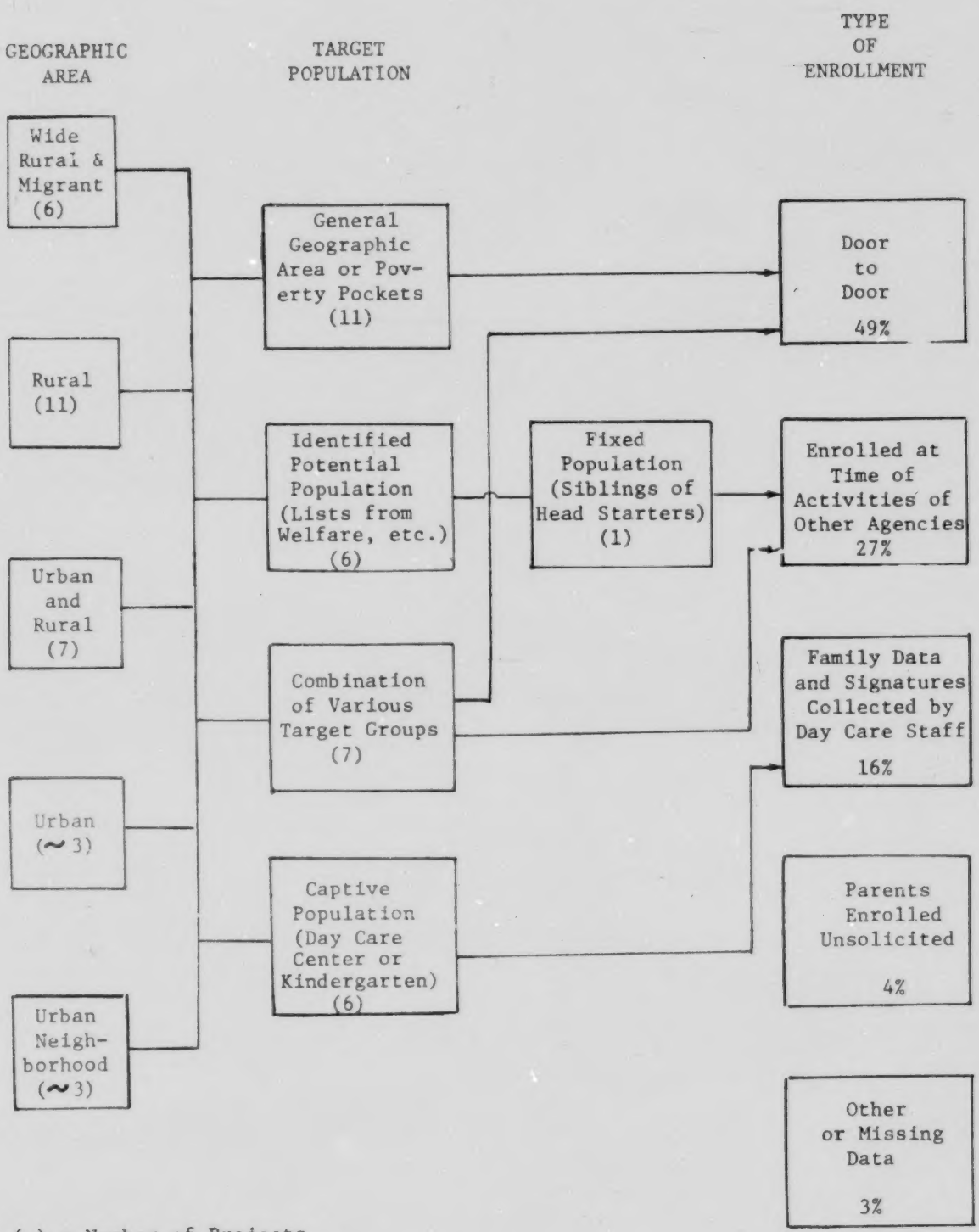
largest group was children already enrolled in existing day care centers (16 percent).

Three major variables affected the amount of resources needed to recruit Health Start children--the geographic area, the target population, and the method of recruitment. All of these factors influenced transportation costs, man-hours spent, and the time devoted to recruiting each child. 1972-73 Health Start served five general classifications of geographic area: (1) "wide rural" (which includes migrant projects covering several counties or an entire state), (2) rural (not in an SMSA)[1], (3) a mix of urban and rural, (4) urban (which includes a major part or all of a city), and (5) urban neighborhood. (See Figure VI-1.)

The target populations of Health Start fall into three general but not necessarily discrete categories: (1) "general geographic areas" or identifiable poverty pockets which can be a part of or all of the geographic area to be served, (2) "identified potential population" which implies referrals from welfare departments, school systems, Community Action Agencies, local health departments, parents, and Health Start staff members, and (3) a "captive population" which has been defined by another program or agency such as day care centers, pre-schools, or kindergartens. Head Start siblings represent a subset of category two ("identified potential population"), because they are a "fixed population"--easily known, identified, and located for enrollment.

Figure VI-1 indicates that the size of target area and the target population identified did not necessarily determine the recruitment methods used by the projects. For example, projects serving wide rural areas

1. Standard Metropolitan Statistical Area.


GEOGRAPHIC AREA
TARGET POPULATION
TYPE OF ENROLLMENT
Wide Rural & Migrant (6)
Rural (11)
Urban and Rural (7)
Urban (~3)
Urban Neighborhood (~3)
General Geographic Area or Poverty Pockets (11)
Identified Potential Population (Lists from Welfare, etc.) (6)
Combination of Various Target Groups (7)
Captive Population (Day Care Center or Kindergarten) (6)
Fixed Population (Siblings of Head Starters) (1)
Door to Door 49%
Enrolled at Time of Activities of Other Agencies 27%
Family Data and Signatures Collected by Day Care Staff 16%
Parents Enrolled Unsolicited 4%
Other or Missing Data 3%

( ) = Number of Projects.
% = Percent of total children enrolled.

Figure VI-1 - Sources and Primary Types of Enrollment for Health Start Projects

(e.g., Penobscot, Grants and Mora) recruited door-to-door and so did Baltimore, serving a section of a city. The various types of recruitment procedures required different amounts of staff time; for example, enrolling children from a wide rural area door-to-door demanded the most man-hours. Enrolling children in this manner necessitated spending a lot of staff time and money for the transportation of recruiters. On the other hand, Health Start projects serving children in day care centers spent little or no money on recruitment, because "enrollment" in those cases meant simply signing up the parents and extracting family background data from the day care center records.

d. Health Services

Although Health Start guidelines did not stipulate who should perform various services or where and how these should take place, they did outline the basic requirements for proper detection and treatment.

The community to be served--its health resources and its health providers--dictated, in effect, the way in which services could be provided. Inevitably, Health Start projects determined which individual providers to enlist; whether Health Start funds, other agency resources, or both would be used; whether Health Start staff, outsiders or both would do some or most of the screening; and how to structure the screening sessions (for groups or individuals, at one meeting or many).

The data indicate that all of the 1972-73 projects utilized "outsiders" in the screening process. At one project, private practitioners (physicians and dentists) conducted all screening, while at another project, a physician not only gave the physical examinations but determined the necessity of dental referrals. Three projects made no plans to use

a dentist in their screening program, yet in fact a majority of children in those projects saw a dentist. Two projects decided that children need not be seen by physicians or dentists unless abnormal readings were found for specific tests. At 16 projects the Health Start staff worked with a mix of providers: physicians, dentists, and other individuals or special screening teams, such as state public health department audiologists or public health nurses. At eight projects, Health Start served only as a liaison to services and did not itself participate in the screening.

Most projects actually conducted fewer screening sessions per child than planned. Only two projects scheduled more sessions than originally planned. The average number of screening sessions per child ranged from one to five, with a median number of encounters across all projects of almost three per child. Almost all Health Start projects did their screening at more than one site, using at least two of the following: existing health facilities, temporary clinics, Health Start or Head Start centers, or children's homes. Seven projects were exceptions: three that used only existing facilities (at Mora, private practitioner's offices, and at Pawtucket and Galveston, HEW 314-E Community Health Centers) and four that did multiphasic screening (the conducting of several procedures by a number of individuals during a single encounter) in temporary clinics. Eight projects took part of their screening into the homes, and 11 projects offered part or almost all of it in their centers.

Projects varied in the tests and procedures used. Some projects, for example, used audiometers in the screening, while others without special equipment tried to determine hearing loss with a clap of the hands. Some

projects gave two blood tests (hematocrit and hemoglobin), others just one of the two. Although most projects planned additional "non-required" tests, they varied greatly in the regimen of tests actually given. Chapter IV presents a detailed analysis of what projects accomplished in the area of screening, diagnosis and treatment of Health Start children.

2. Analysis of Project Characteristics and Project Results

a. Methodology

Because Health Start projects varied greatly in approaches taken, few conclusions can be reached about the project characteristics that could lead to project success. The evaluators attempted to develop models combining various project characteristics in order to compare the relative success of various types of projects. However, because of the many uncontrolled project variables, no models emerged that could be generalized to more than several projects. As a result, Health Start data were used to examine trends in relationships between and among project characteristics and between individual project characteristics and project outcomes. Cross tabulations of project characteristics and project results were computed.

(1) Criteria for Analysis

Because of these data limitations two criteria were used to determine whether statistically significant conclusions could be made about the interrelationships between project characteristics and project success. They were:

(a) "Chi square" tests were used to determine whether results could have occurred by chance. If there was more than a 5 percent probability (level of significance) that the results could have occurred accidentally, no conclusions were made.

(b) To ensure that the relationships of project characteristics were generalizable, data on a particular characteristic representing either small samples of children or children concentrated in only a few projects were not used. Therefore, if more than 30 percent of the children were in one Health Start project or if less than 10 percent (1000 children) were in a category of projects, no conclusions were drawn.

(2) Project Characteristics

The following project characteristics were considered in this analysis:

- amount of planning
- type of outreach and recruitment
- project start-up--amount of delay
- staffing--background of coordinator, status of coordinator (part-time/full-time), coordinators' Health Start experience (two years, one year, less than year), staff days per enrolled child
- grantee--type (CAP, public health department, school system) and experience (first year or second year Health Start)
- size of project
- amount of "coordinated" resources used
- per child cost of the program
- screening and testing--procedure (multiphasic vs. all other types) and percent done by Health Start staff

(3) Project Results

Project performance on the following factors were considered in the analysis:

- bringing children up-to-date on immunizations
- providing medical and dental services (testing and treating problems detected)
- conducting all guideline-required tests and screening
- performing additional (non-required) tests
- providing health education
- transmitting children's health records after program termination
- arranging future care for enrolled children.

b. Interrelationships Among Project Characteristics

Some of the Health Start project characteristics were found to be interrelated. The measurable relationships observed were:

- Projects with higher per child grant expenditures[1] tended to also have a higher ratio of staff man-days per child.[2]
- Projects having nurses as coordinators (as opposed to non-nurses) tended to have a higher ratio of staff man-days per child.
- Projects with nurses also tended to have high per child grant expenditures.

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1. To meet the analysis criteria mentioned above, projects were divided into two groups: under $100/child and over $100/child.
2. Projects were divided into two categories (under and over 4.5 man-days per child).

- Projects with low per child grant expenditures tended to generate high amounts of coordinated resources (relative to other projects).
- Projects generating a relatively high amount of coordinated resources tended to have nurses as coordinators.
- Rural projects tended to have higher per child grant expenditures and a higher ratio of staff time per child.
- Small projects were more likely to have nurses as coordinators than large projects.
- Projects in which a high number of screenings and tests were performed by Health Start staff[1] were likely to have nurse coordinators.
- Projects serving non-migrant children tended to have nurses as coordinators.
- Projects with small or no delays in project start-up tended to be non-urban, refunded projects with experienced coordinators.

c. Relationship of Project Characteristics and Project Results

(1) Characteristics Having No Measurable Relationship with Project Results

No statistically significant conclusions were reached concerning the causal relationships of the following project characteristics and project results: (a) planning, (b) outreach and recruitment, (c) employment status of coordinator (part-time/full-time), and (d) grantee type.

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1. Projects were divided into two categories: those with Health Start staff themselves conducting an average of less than one screening per child and those projects conducting more than one screening per child.

(2) Characteristics Having Slight Relationship to Project Success

Some characteristics seemed to be slightly related to project results. For example, project delays in start-up tended to reduce the number of screening tests given. However, Table VI-1 shows that, contrary to expectations, projects with substantial delays in beginning operations were more successful in completing required dental treatment, repairing caries, and in making on-going health care arrangements for the children enrolled.

TABLE VI-1

EFFECT OF PROJECT START-UP ON PROJECT PERFORMANCE

Measure of Performance	Category Of Project (amount of delay in start-up of project)		
	No Delay	Modest Delay	Big Delay
Percent completing immunizations of children needing them	37%	49%	43%
Percent of children (not considered "too young") receiving dental treatment	62%	62%	57%
Percent of required dental treatments completed	61%	82%	83%
Average number caries repaired per child receiving dental treatment	3.0	3.0	5.5
Percent receiving medical screening	81%	73%	66%
Percent of medical treatments completed	46%	63%	49%
Average number screening tests per per enrolled child	5.9	5.1	5.0
Average number health education encounters with parents	1.1	1.9	1.8
Average number health education encounters with child	1.1	1.4	1.7
Percent of children with health records transmitted to another agency after program	48%	75%	66%
Percent of children with no reported future sources of funds or services for dental or medical care	51%	27%	16%
Number of Children in Projects	3606	4724	2105

Previous experience of the health coordinator in Health Start appeared to give a slight advantage. As Table VI-2 shows projects with coordinators hired in the 1971 program were more successful in enrolling children quickly, in completing needed medical and dental treatment and in transmitting health records to other agencies at the end of the program. Yet coordinators starting with Health Start in the 1972-73 program year did about the same in screening the children, providing health education and arranging for the future health care of the enrolled children.

TABLE VI-2

COMPARISON OF EXPERIENCED VERSUS
NEW HEALTH START COORDINATORS

	Project Coordinator Had Previous Health Start Experience?	
Project Performance Measure	Yes	No
Percent of children enrolled before August 1972	70%	14%
Percent of eligible receiving dental screening	59%	64%
Percent of dental treatments completed	78%	65%
Percent getting medical screening	77%	71%
Percent of medical treatments complete	63%	36%
Average number of screening tests per child	5.1	5.6
Average number of health education encounters with child	1.4	1.3
Average number of health education encounters with parents	1.5	1.7
Percent of children with records transmitted to another agency	70%	52%
Percent of children with no known future source of funds or services for dental or mdedical care	34%	35%

The performance of refunded projects (funded in 1971) was not measurably superior to that of projects funded for the first time in 1972. One obvious advantage that refunded projects had was on enrollment which was 64 percent complete by August 1972 (two months after the 1972-73 program year started) as compared to 6 percent for projects originally funded in 1972. On two other measures refunded projects did substantially better than 1972 projects--completing medical treatment (61 vs. 33 percent) and transmitting the children's health records at the end of the year (74 vs. 45 percent). Yet, on other measures, projects originally funded in 1972 did about the same or had a slight edge.

Project conducting multiphasic screening were more successful in testing children than were projects conducting other types of screening programs (as Table VI-3 indicates). They also found a higher percentage of children needed medical treatment, but they did substantially less in completing both the medical and dental problems detected.

TABLE VI-3

COMPARISON OF PROJECTS CONDUCTING
MULTIPHASIC SCREENING VS. ALL OTHERS

Screening Procedure	Medical			Dental		
	Percent Screened	Percent Screened Needing Treatment	Percent of Needed Treatment Completed	Percent Screened	Percent Screened Needing Treatment	Percent of Needed Treatment Completed
Multiphasic Screening (4 projects)	84 (2118)*	25	41	72 (1754)	27	47
All Other Categories (27 projects)	72 (7114)	18	58	57 (5980)	32	81

* ( ) Number in Sample

Projects with staffs conducting more than one screening test per child screened more children (an average of 5.2 screens per child) than did projects with staffs conducting less than one screening test (an average of 4.6 per child). Finally, projects generating a relatively large amount of "coordinated" (free) resources tended to do slightly better on some measures.[1] Projects using high amounts of coordinated services generally did well on the number of completed treatments per enrolled child, however, not well in significantly reducing the grant expenditures per completed treatment.

(3) Project Characteristics Strongly Associated With High Project Performance

High project performance was related to nurse coordinators, high per child grant expenditures, high ratio of staff time per child enrolled, and relatively small numbers of children enrolled. Figure VI-2 shows these relationships as well as the project characteristics having slight correlation to project results and the observed interrelationships among project characteristics.

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1. See discussion of project expenditures and project performance, pp. VI-25 through VI-27.
2. Not significant at .30 level (2 X 3 chi square table).

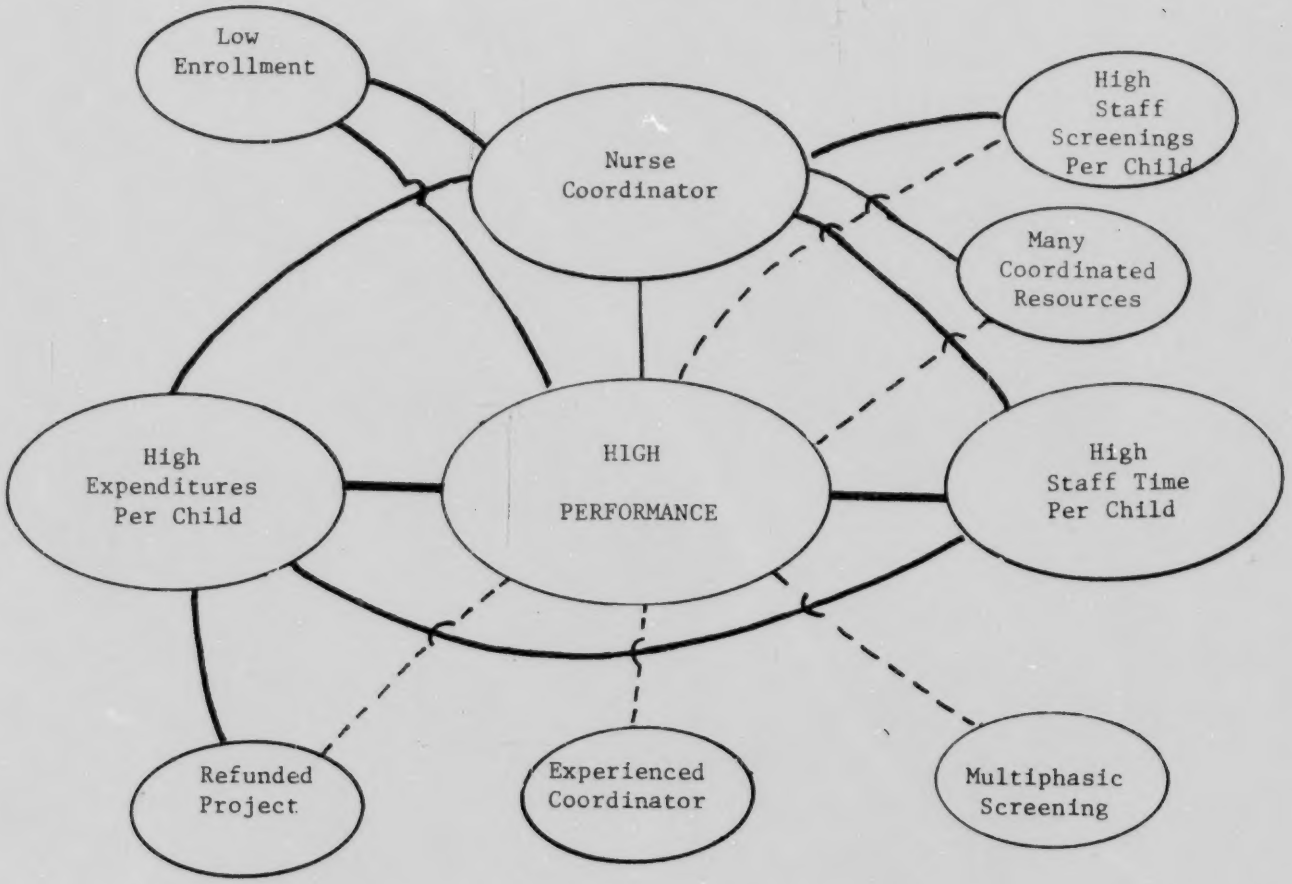


Figure VI-2 - Correlation of Health Start Project Characteristics With Project Performance

(a) Project With Nurse Coordinators

About 60 percent of all enrolled children were in projects with a nurse as coordinator. Projects with nurses as coordinators performed uniformly better on the various measures shown in Table VI-4 than those without. Children with nurse coordinators got more dental and medical screening and averaged slightly more total screening tests received. The number of health education encounters in projects with nurse coordinators was almost double the education sessions in projects without nurse coordinators.

TABLE VI-4

COMPARISON OF NURSE AND NON-NURSE COORDINATORS

Project Performance Measure	Type of Project Coordinator	
	Nurse	Non-Nurse
Percent of eligible receiving dental screening	64%	56%
Percent receiving medical screening	79%	67%
Average number screening tests per child	5.6	5.1
Average number health education encounters with child	1.6	0.8
Average number health education encounters with parents	1.9	1.1
Percent of children with records transmitted to another agency	86%	27%
Percent of children with no reported future sources of funds or services for dental or medical care	24%	47%

(b) High Grant Expenditures Per Child and High Amount of Coordinated Resources

Both increases in amount of grant expenditures per child and amount of coordinated resources generated tended to improve project performance in screening and treating the children. With the exception of one measure used in Table VI-5 (percent of medical treatments completed) Health Start projects expending more than $100/child of grant funds were more successful than projects spending under $100/child of grant money.

TABLE VI-5

COMPARISON OF PERFORMANCE FOR PROJECTS SPENDING UNDER AND OVER $100 OF HEALTH START FUNDS PER CHILD ENROLLED

Project Performance Measure	Category Of Project Health Start Funds Expended Per Enrolled Child	
	Under $100	Over $100
Percent immunizations completed in children needing	41%	55%
Percent screened of the children eligible for dental screening	51%	65%
Percent of needed dental treatments completed	72%	81%
Average number of caries repaired per child getting dental treatment	2.6	4.7
Percent receiving medical screening	69%	82%
Percent of needed medical treatments completed	63%	53%
Average number screening tests per enrolled child	4.5	5.8
Average number health education encounters with parents	1.3	1.8
Average number health education encounters with child	1.0	1.7
Percent of children with health records transmitted to another agency after program	56%	95%
Percent of children with no reported future sources of funds or services for dental or medical care	37%	16%
Number of Projects Number of Children in Projects	14 (5591)	12 (2862)

High grant expenditures also were related to the average amount of dental treatment given per child treated. The differences shown in Table VI-6 for project averages of extracted teeth, repaired caries and other restorative work are well beyond what could result from random error alone.

TABLE VI-6

PROJECT PER CHILD EXPENDITURES
AND TYPE OF DENTAL TREATMENT GIVEN

Health Start Funds Per Enrolled Child	Number of Children Treated	Mean Values For Children Receiving Some Dental Treatment		
		Extractions	Caries Repaired	Caps, etc.
Under $100	941	0.17	2.62	0.17
Over $100	919	0.48	4.65	0.32

A moderate tendency existed between a higher amount of coordinated resources generated and low expenditures per child. Therefore, Table VI-7 shows (for six measures) not only did projects with lower per child expenditures perform better than high per child expenditures but also projects with higher coordination seemed to be more successful than projects generating relatively few outside resources.

TABLE VI-7: THE EFFECT* OF PER CHILD GRANT EXPENDITURES AND COORDINATION OF RESOURCES ON PROJECT PERFORMANCE

GRANT EXPENDITURES PER ENROLLED CHILD	AMOUNT OF COORDINATION: Low	Some	High
Low (under $100)	# Projects - 2 # Children - 1140 % Eligible Children Receiving Dental Screening 37 % Trt. Comp. 35 % Med. Scr. 42 % Trt. Comp. 52 # Scr. Per Child 4.2	# Projects - 8 # Children - 3086 % Eligible Children Receiving Dental Screening 49 % Trt. Comp. 75 % Med. Scr. 73 % Trt. Comp. 65 # Scr. Per Child 4.3	# Projects - 4 # Children - 1363 % Eligible Children Receiving Dental Screening 52 % Trt. Comp. 76 % Med. Scr. 80 % Trt. Comp. 52 # Scr. Per Child 5.7
Mid ($100 to $200)	# Projects - 5 # Children - 1108 % Eligible Children Receiving Dental Screening 83 % Trt. Comp. 90 % Med. Scr. 79 % Trt. Comp. 46 # Scr. Per Child 5.8	# Projects - 1 # Children - 179 % Eligible Children Receiving Dental Screening 80 % Trt. Comp. 95 % Med. Scr. 65 % Trt. Comp. 66 # Scr. Per Child 6.4	# Projects - 2 # Children - 401 % Eligible Children Receiving Dental Screening 95 % Trt. Comp. 74 % Med. Scr. 89 % Trt. Comp. 65 # Scr. Per Child 5.8
High (over $200)	# Projects - 1 # Children - 98 % Eligible Children Receiving Dental Screening 95 % Trt. Comp. 0 % Med. Scr. 62 % Trt. Comp. 0 # Scr. Per Child 3.4	# Projects - 3 # Children - 1176 % Eligible Children Receiving Dental Screening 39 % Trt. Comp. 75 % Med. Scr. 85 % Trt. Comp. 55 # Scr. Per Child 6.0	# Projects = 0 # Children = 0

*A chi-square test on the frequency of occurrence of projects in the categories used is significant at 0.10 level.

(c) High Ratios of Staff Time Per Enrolled Child

In general, projects with a high number of staff days per enrolled child (4.5) provided a greater amount of health services to the Health Start children as shown in Table VI-8.

TABLE VI-8

EFFECT OF STAFF SIZE ON PROJECT PERFORMANCE

Performance Measure	Project Staff Size (Man-Days Per Enrolled Child)	
	Under 4.5	Over 4.5
Percent immunizations completed for children needing	35%	36%
Percent of eligible receiving dental screening	68%	82%
Percent of dental treatment completed	73%	83%
Average number caries per child getting dental treatment	2.7	4.8
Percent receiving medical screening	76%	90%
Percent of medical treatment completed	52%	46%
Average number of screening tests per child	5.4	6.2
Average number health education encounters with parents	1.4	2.3
Average number of health education encounters with child	1.2	2.0
Percent of children with no reported future sources of funds or services for dental or medical care	57%	14%

(d) Small Projects

With the exception of two output measures used (percent of children receiving medical screening and number of caries repaired per child getting dental treatment), smaller projects performed better than large projects as is evidenced by data in Table VI-9.

TABLE VI-9

COMPARISON OF PERFORMANCE FOR PROJECTS ACCORDING TO NUMBER OF CHILDREN ENROLLED

	Category of Project (number of enrolled children)		
Measure of Performance	Under 200	200 to 400	Over 400
Percent of children with incomplete immunizations completed during year	56%	46%	37%
Percent screened (of children eligible for dental screening)	67%	64%	56%
Percent of needed dental treatments completed	77%	75%	72%
Average number caries repaired per child getting dental treatment	3.6	4.1	3.1
Percent receiving medical screening	71%	76%	74%
Percent of needed medical treatment completed	66%	58%	42%
Average number screening tests per enrolled child	5.7	5.4	5.2
Average number health education encounters with parents	2.3	1.7	1.2
Average number health education encounters with children	1.6	1.3	1.3
Percent of children with health records transmitted to another agency after program	91%	64%	51%
Percent of children with no reported future sources of funds or services for dental or medical care	13%	24%	50%

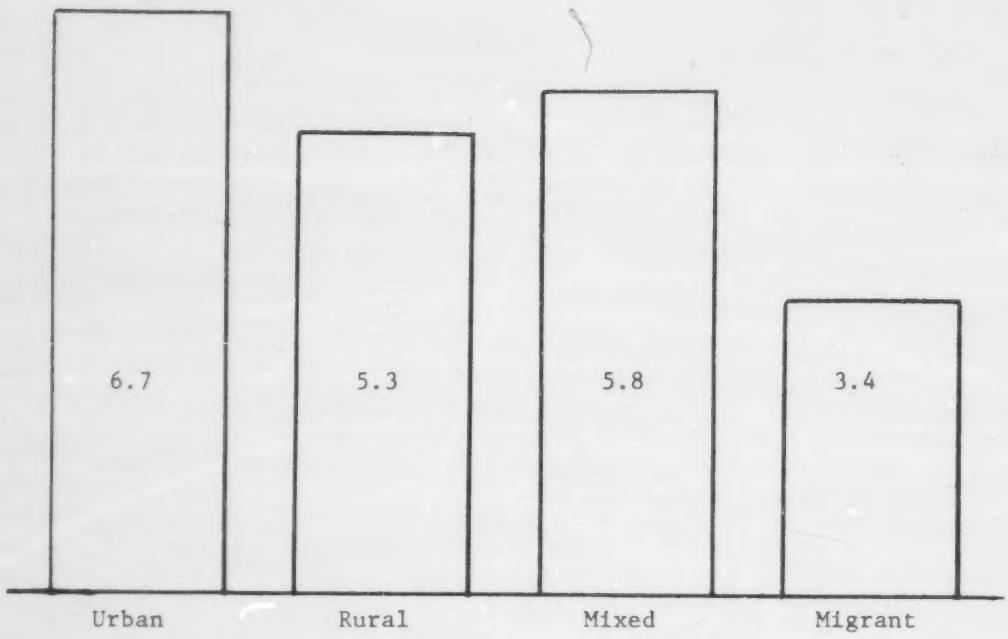
B. Relationship of Health Start Project Results and Community Characteristics

For purpose of this analysis, Health Start projects were divided into four groups: urban, rural, mixed (urban and rural) and migrant. Generally, urban and migrant projects fared worse on most measures than did other types of projects. Figure VI-3 shows that there were two exceptions: (1) Urban projects gave more tests per child, although on average they found about the same number of abnormal conditions per screening test given as did rural and mixed projects. (2) Migrant projects found the highest proportion of health problems in the children tested.

Figure VI-4 shows that urban and migrant projects completed treatments for a smaller percent of those children needing treatment than did the other projects and that the six urban projects all spent less than the average project expenditure of $104 per child.

Figure VI-5 shows that three of the six urban projects completed less than 50 percent of the treatment needed, while less than one-fourth of all other projects completed less than 50 percent of the needed treatment. These results about urban projects appear paradoxical in the light of three factors:

- Urban children have the highest enrollment rate in Medicaid (54 percent) as compared to 32 percent for rural projects, 37 percent for mixed projects and 22 percent in migrant projects.
- Urban children have almost twice the percent of up-to-date immunizations of other children.
- Urban children have had considerably more previous medical and dental care than others.



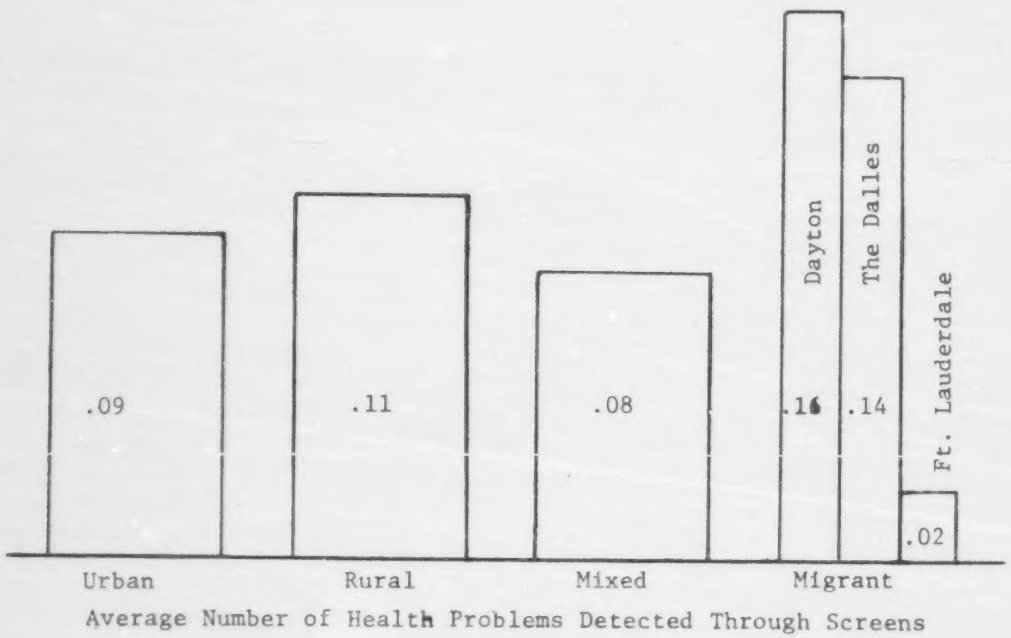


Figure VI-3 - Relationship of Community Characteristics to Project Performance: Screening and Detecting Health Problems

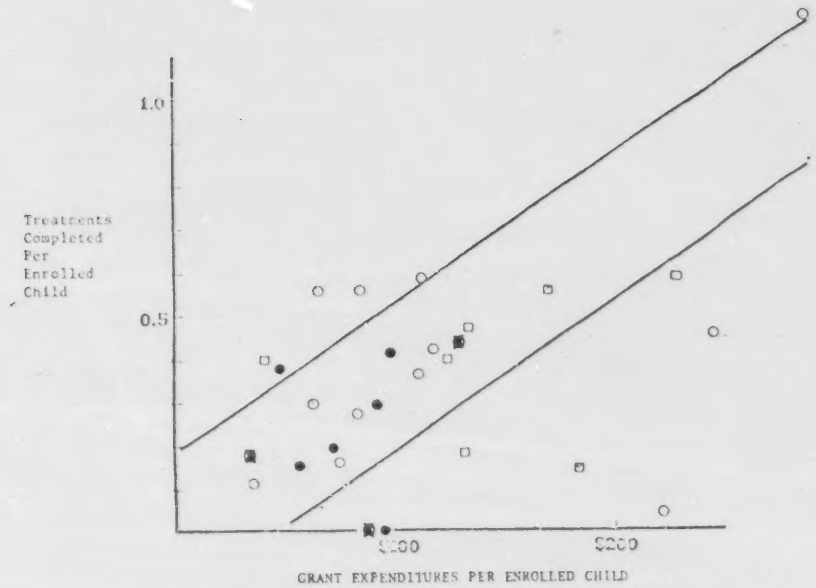


Figure VI-4 - Relationship of Community Characteristics to Project Performance: Treatments Completed and Grant Expenditures

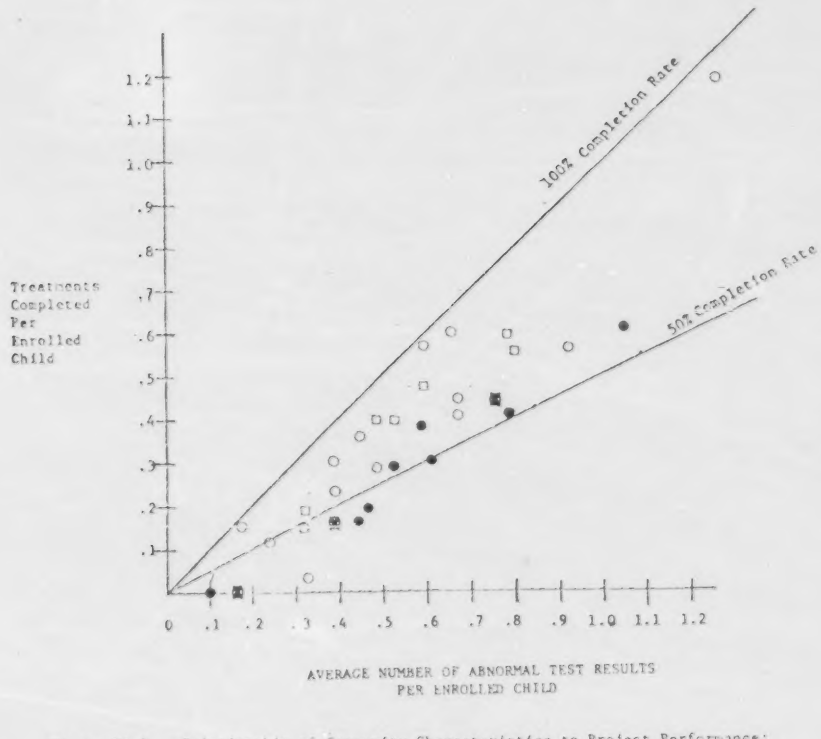


Figure VI-5 - Relationship of Community Characteristics to Project Performance: Health Problems Detected and Corrected

C. Relationship of Health Start Project Results and Pre-Existing Medical Services

The amount of health care resources available (as measured by the number of physicians per thousand residents in the community)[1] did not have a detectable influence on project performance. The distributions of performance among projects with high, medium, and low amounts of health resources in the community were not markedly different. However, it is ironic that the three projects with the fewest completed treatments, both per enrolled child and per treatment needed, all were in communities with a high number of health resources.[2] Thus the presence of an abundance of health resources does not guarantee good project performance, nor does a paucity of resources inevitably lead to poor performance.

D. Conclusions

Because of the Health Start program design did not permit isolation of single factors, no successful program models emerged from the data analysis. However, many individual project characteristics appeared to be interrelated and some individual characteristics were either slightly or strongly related to successful project results. High project performance (in terms of health services given) was most strongly associated with nurse coordinators (as opposed to coordinators who were not nurses), high expenditures per child, high ratio of Health Start staff to children enrolled, and small project size.

Urban and migrant projects generally did not do as well as rural and mixed (urban and rural) projects. The migrant project results could have been predicted (given the difficulty in providing health care to a migrant

1. Source: Distribution of Physicians in the U.S., American Medical Association, Center for Research and Development, Chicago 1972.

2. This conclusion does not take into account other factors that might have affected project activities, e.g., the attitude of the health community and accessibility of services.

population and the poor performance of migrant projects in the first year Health Start). However, considering the fact that children in urban projects entered Health Start with certain advantages (higher enrollment in Medicaid, more immunizations up-to-date, and more previous medical and dental care), they did not receive as many services as did rural projects and projects serving both urban and rural children.

Finally, the existence of health resources in the community (as measured by the number of physicians per thousand residents) did not have a measurable influence on project performance.

CHAPTER VII

COST ANALYSIS OF THE HEALTH START PROGRAM

A. Planned and Actual Expenditures

Table VII-1 shows the grant size for each Health Start project, the percent of the grant expended, the planned per child cost and the final per child grant expenditure. Project grants ranged from $15,000 to $252,000, project size from 88 to 864 children, and the resultant planned per child expenditures from $22 to $320. The actual per child expenditures ranged from $38 to $286. Some projects spent almost all of their grant funds,[1] while one project spent one-third of its grant. Even though analysis of the data shows generally that Health Start projects spending more money gave more health service, there is not a perfect correlation between the amount of money spent and the amount of services given to the children. This is due to other factors affecting cost and project performance.

As Chapter VI indicated, few projects had commitments from health service providers before beginning operations: for the number of children who would be served, for what types of services, at what costs. Therefore, it is not surprising that the planned and actual expenditures varied considerably. A trend similar to that in the first year program was evidenced in the second year. The amount of the grant expended had little connection with either relative planned per child expenditures or accurate estimates of the number of children who would be enrolled in the program. Five projects substantially decreased this planned per child cost, yet had considerable money left over

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1. One project reported spending 125 percent of the grant. Twenty-five percent was from the 1971-72 Health Start grant.

TABLE VII-1 - PLANNED AND ACTUAL COST PER CHILD

SITE	Grant Size	% Grant Expended	Planned Cost/Child	Actual Cost/Child	% Increase or Decrease
REGION I					
Pawtucket, R. I.	$ 37,794	58%	$ 63	$ 71	+ 13%
Penobscot, Me.	57,612	96	115	86	- 25
REGION II					
Toms River, N. J.	25,108	44	100	65	- 35
Albion, N. Y.	32,500	*	260	*	*
San Juan, P. R.	40,270	*	322	*	*
REGION III					
Baltimore, Md.	30,000	67	100	93	- 7
Fairmont, W. Va. (Marion) (Barbour)	45,891	56	254	131	- 48
REGION IV					
Boone, N C.	25,000	84	91	66	- 27
Orlando, Fla.	26,000	93	118	299	+153
Charleston, S. C.	25,000	64	83	53	- 36
West Palm Beach, Fla.	15,000	55	75	41	- 45
REGION V					
Flint, Mich.	45,532	77	130	97	- 25
Mora, Minn.	25,057	90	68	74	+ 9
Dayton, Ohio	19,183	125**	96	130	+ 35
REGION VI					
Alburquerque, N. M.	36,692	82	122	90	- 25
Oklahoma City, Okla.	43,981	81	22	49	+123
Grants, N. M.	40,000	64	200	83	- 58
Galveston, Tex.	45,000	49	150	226	+ 51
Hammond, La.	252,000	82	168	241	+ 43
REGION VII					
Portageville, Mo.	40,000	74	154	112	- 27
Carroll, Iowa	40,000	36	75	38	- 49
REGION VIII					
Center, Colo.	40,000	100	320	286	- 11
Ceder City, Utah	40,000	59	200	110	- 45
REGION IX					
Merced, Calif.	78,990	70	125	116	- 7
REGION X					
Hillsboro, Ore.	45,509	81	182	170	- 7
Medford, Ore.	35,000	64	175	125	- 29
Coos Bay, Ore.	26,063	85	261	187	- 28
IMPD					
The Dalles, Ore.	37,735	87	42	38	- 10
Ft. Lauderdale, Fla.	100,000	68	200	89	- 55

* Expenditure breakdown not reported.
** Includes carry-over funds from 1971-72 program.

(mainly because all children enrolled did not get all needed health services and/or because the actual enrollment fell short of the planned). Three projects increased substantially the actual per child costs over the planned, again with grant money expended--the primary reason being that each project enrolled approximately one-half of the children planned. What is obvious from the data is that planning was a weakness, both at the project level (i.e., cost estimates bearing little resemblance to actual expenditures) and at the regional office level (i.e., grant funds allocated to projects without evidence of well-planned budgets).

B. The Composition of Health Start Grant Expenditures

Approximately one-fourth of the Health Start project grant expenditures was used for direct health service delivery, with the remainder of the grant funds covering personnel, transportation and other administrative items. Table VII-2 shows that personnel costs across projects dominated Health Start grant expenditures (61 percent of the total grant expenditures and an average of $63 an enrollee). Even though there was a variation across projects in the amount spent on personnel (from zero to 85 percent of the grant expended), all except seven projects used over 50 percent of their grant funds for personnel.

TABLE VII-2

COMPONENTS OF HEALTH START GRANT EXPENDITURES

(Data Source: Health Start Expenditure Forms June 1973)

Grant Expenditure Item	Percent of Grant Expenditure
Personnel	61
Coordinator Salary	19
Other Salaries	37
Fringe Benefits	5
Travel	9
Health Services*	23
Space, Supplies, etc.	7
TOTAL GRANT EXPENDITURES FOR 27 HEALTH START PROJECTS**	100% (about $104 per enrollee)

* Screening, immunization and treatment of children.
**Expenditure data for three projects were not reported.

C. Relationship of Grant Expenditures and Project Use of Coordinated (Contributed) Resources

For every dollar of grant money expended, Health Start projects generated and used more than 20 cents from other sources. Because of scattered reporting on the dollar value of services used and not paid through the Health Start grant, the exact amount of the value of the "free" services is unknown.[1] Over one-half of the reported coordinated resources used by Health Start projects was for direct health services. Figure VII-1 shows that projects with lower

1. Costs for some of the most expensive health services, e.g., certain kinds of medical treatment, usually were incurred by another agency like Crippled Children's Service or Medicaid-Title XIX. Few Health Start projects were able to estimate the dollar value of such services. Therefore, even though relatively few children needed such expensive care, it is assumed that if these costs were estimated the amount of services contributed to Health Start by other agencies/individuals would be slightly higher.

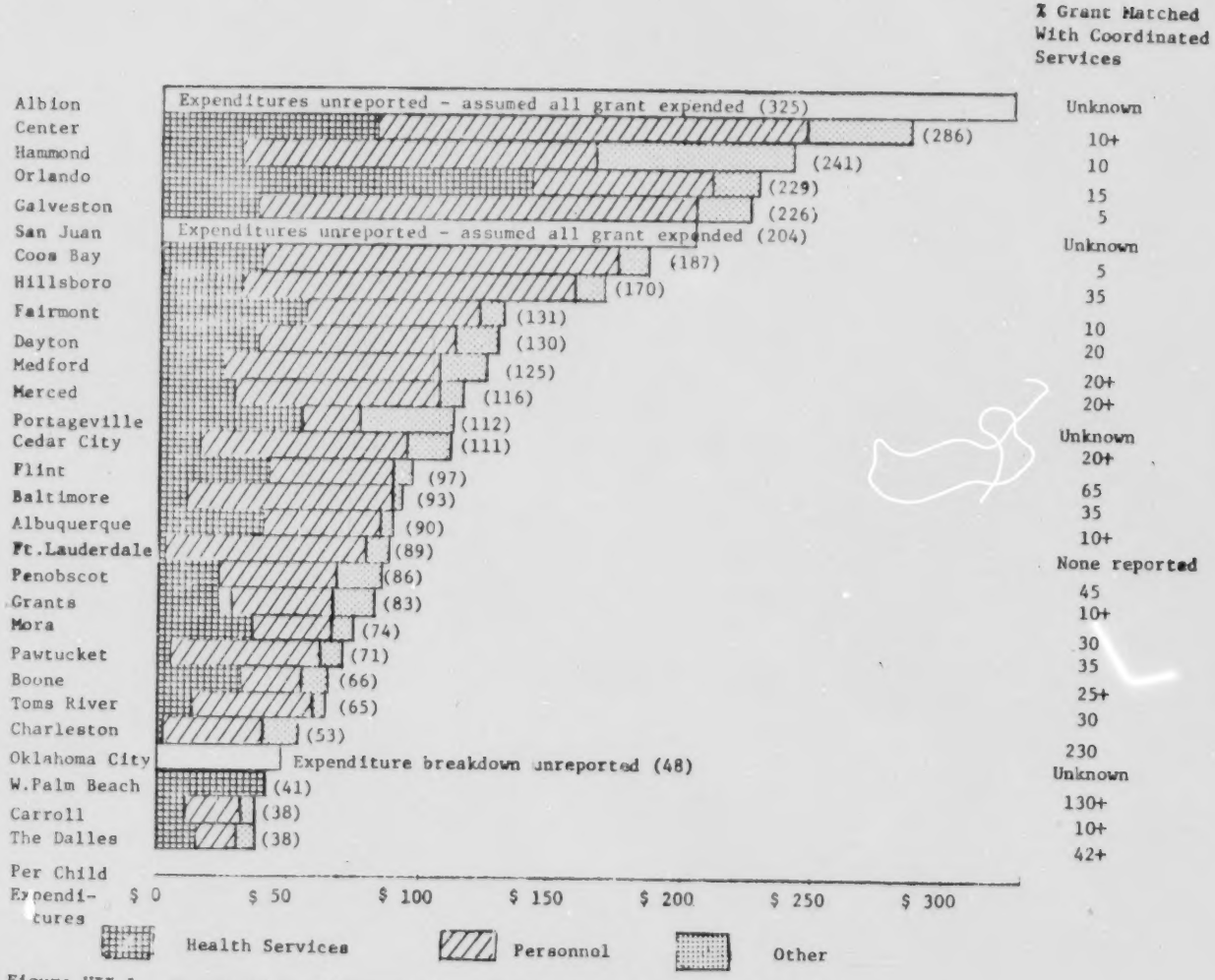

Figure VII-1 - Per Child Grant Expenditures and Amount of Coordinated Services

grant expenditures per enrollee tend to have received more "coordinated" health services.[1]

1. Sources of Funds for Screening and Immunizations

Health Start grant funds were used for a majority of all screenings and tests performed on the Health Start children. The source of funds for screening and immunizations is shown in Table VII-3. The 60 percent of the children receiving immunizations through "contributing agencies" were almost without exception served by a local public health department--also the major source of "contributed" tuberculin tests. Usually blood tests[2] and urinalyses were performed by Health Start personnel or private physicians paid by Health Start funds. Vision screenings were most frequently done by public health departments or voluntary organizations (e.g., Lion's Club) and were paid for by the provider. An organization often provided hearing screening, although there seemed to be no typical arrangement for providing it. Dental and medical screening were performed usually by private dentists and doctors whose fees were paid by Health Start. Medicaid was rarely a source of funds for any of the various screening tests. Health Start staff members did a substantial portion of the screening themselves. Staff conducted 53 percent of the urinalyses, 44 percent of the speech screening and 40 percent of the tuberculin tests.

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1. The trend is statistically significant at the .01 level based on the Spearman rank correlation coefficient with a value of 0.59.
2. Hematocrit and/or hemoglobin.

TABLE VII-3

SOURCE OF FUNDS FOR SCREENING AND IMMUNIZATIONS

(Data Source: Expenditure Forms of 27 Projects as of June 1973)

Type of Service	Sample Size** (# Children)	Percent of Children Served by Source of Funds			
		Health Start Grant Funds		"Coordinated"	
		Staff	Fee For Svc. & Contracts	Contributed By Provider	Title XIX Medicaid
Immunizations	4425	20%	18%	60%	2%
Tuberculin Test	3684	40	6	54	0
Blood Test	5490	37	39	18	6
Urinalysis	4415	53	32	9	6
Vision Screening	4052	26	18	53	3
Hearing Screening	4033	25	16	58	1
Speech Screening*	1863	44	31	25	0
Dental Screening	4382	6	67	24	3
Medical Screening	5363	16	70	7	7

* Not a required test.

** The number of children for whom the funding source of service was reported.

2. Source of Funds for Health Treatment

Health Start paid for most of the health treatment given to Health Start children. The two exceptions were vision and hearing treatment which tended to be performed with other agency resources. Table VII-4 presents the source of funds for five categories of treatment (reported resulting from each screening or test). Because the number of dental and medical treatments far exceeded the number of other types of treatments given, Health Start paid for most of the treatments given. Since Health Start also paid

for most of the screening and testing, most of the individual health services were paid by direct expenditure of Health Start funds.

TABLE VII-4

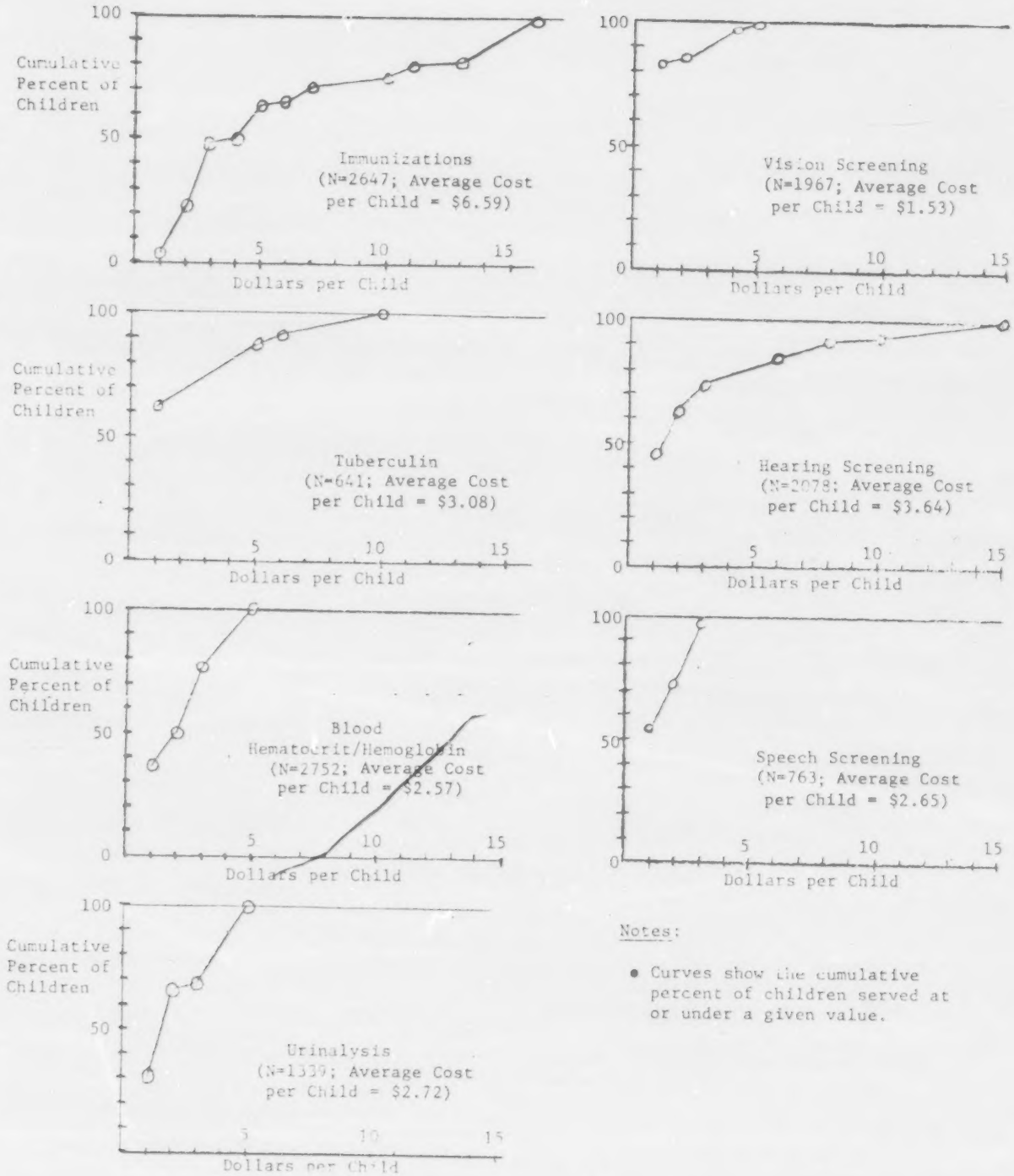
SOURCE OF FUNDS FOR TREATMENT

Type of Treatment	Sample Size* (# Children)	Percent of Children Treated By Source of Funds			
		Fee For Service Or Contract Paid By Health Start Grant	Coordinated Resources		
			Service Inkind Paid By Provider	Title XIX Medicaid	Other
Vision	197	39%	44%	13%	-
Hearing	88	24	59	16	-
Speech	57	63	16	-	21
Dental	2144	91	4	4	-
Medical	1732**	68	9	7	16

* Number of children for whom funding source of treatment was reported.
** Could include children counted more than once for more than one type of medical treatment. Data from only 18 projects could be used.
Source: Expenditure Forms as of June 1973 for 27 projects.

D. Per Child Costs of Health Services

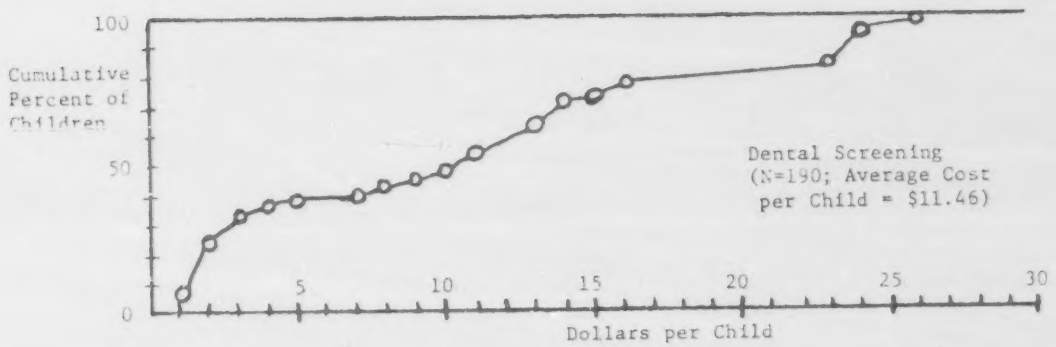
The per child cost of screening and treatment for health problems varied widely. The available data on the dispersion of these costs are summarized in Figure VII-2. The figure indicates for each type of service the cost and the percent of children reported by projects who were served. The raw cost data from which the above were derived consisted of the number and average



Notes:

- Curves show the cumulative percent of children served at or under a given value.

Figure VII-2 - Distribution of Unit Costs for Screening and Immunization



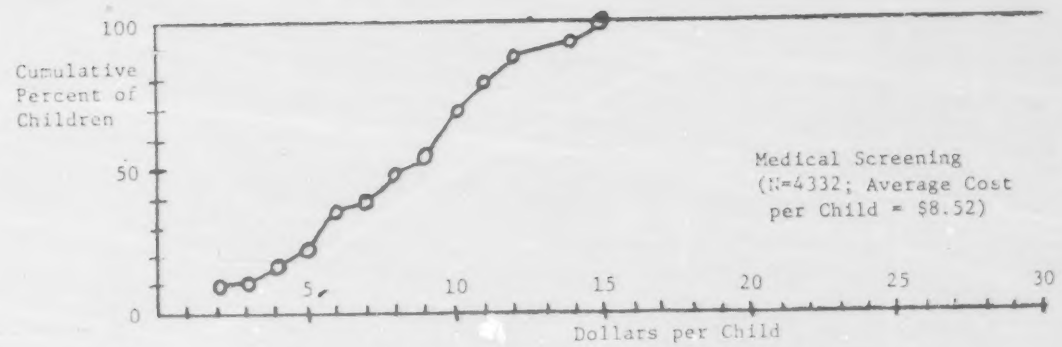


Figure VII-2 (Continued)- Distribution of Unit Costs for Screening and Immunization

unit cost in a project for children receiving a specified type of service from a specified type of provider and source of payment. (For example, 10 children received hemoglobin tests at $3.00 from a private doctor paid by Health Start.)

The variations in unit costs for screening tests were too wide to permit any accurate conclusions as to what combinations of provider and payment sources result in higher or lower costs. For example, there were 35 "observations"[1] of medical screening costs (one of the large sample sizes), but a comparison of unit costs paid by Health Start and those not paid by Health Start yielded no real difference.[2]

E. Cost Projections

In estimating the average cost for treatment per enrolled child one must consider the following items:

- fraction of children tested who need treatment
- rates for false positive and false negative results on screening tests
- fraction of children recommended for treatment who receive treatment as a result of screening
- unit cost of treatments
- number of treatments provided

Table VII-5 presents data on the cost estimates and projections for case finding, detection, and treatment program for pre-school children. These figures are based primarily on Health Start data. The data include the average unit cost of Health Start services, the percent of the total services paid for by some other agency or individual ("coordinated"), and the detection rates for each screening test.

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1. An "observation" is the average cost in a project for medical screening from a specified combination of services and source of funds (e.g., private physician, fee for service).

2. Using a Kolmogorov-Smirnov two sample test on the 35 observations at a .05 level of significance.

TABLE VII-5

PROJECTED COSTS OF HEALTH CARE DELIVERY, SCREENING, DETECTION, AND TREATMENT PROGRAM

Item	Average Unit Cost Of Service*	Percent Available Through Coordination*	Fraction of Children Needing Service			Projected Per Child Cost*					
						No Coordination			With Coordination		
			Under 3 Years Old	Over 3 Years Old	0-6 Years Old	Under 3 Years Old	Over 3 Years Old	0-6 Years Old	Under 3 Years Old	Over 3 Years Old	0-6 Years Old
Immunization	$ 6.60	62%	85%	78%	81%	$ 5.50	$ 5.10	$ 5.30	$ 2.10	$ 1.95	$ 2.00
Blood Test	2.50	25%	All	All	All	2.50	2.50	2.50	1.90	1.90	1.90
Urinalysis	2.70	15%	All	All	All	2.70	2.70	2.70	2.30	2.30	2.30
Vision Screening	1.50	56%	All	All	All	1.50	1.50	1.50	0.70	0.70	0.70
Hearing Screening	3.60	59%	All	All	All	3.60	3.60	3.60	1.50	1.50	1.50
Speech Screening	2.70	25%	None	All	60%	0	2.70	1.40	0	1.35	.70
Tuberculin Test	3.10	54%	All	All	All	3.10	3.10	3.10	1.40	1.40	1.40
Dental Screening	11.50	27%	None	All	50%	0	11.50	5.80	0	5.75	2.90
Medical Screening	8.50	14%	All	All	All	8.50	8.50	8.50	7.30	7.30	7.30
Total Screening And Immunizations	$42.70	-	-	-	-	$27.40	$41.20	$34.40	$17.20	$24.15	$19.70
Treatment from Blood Test	$ 6.00	Assume 0%	19%	12%	16%	$ 1.15	$ 0.70	.90	$ 1.15	$ .70	.90
Treatment from Urinalysis	10.00	Assume 0%	3%	3%	3%	0.30	0.30	.30	0.30	0.30	.30
Vision Treatment	24.00	57%	6%	7%	7%	0.70	1.70	1.20	.30	.70	.50
Hearing Treatment	53.00	75%	3%	4%	4%	1.60	2.10	1.85	.40	.50	.50
Speech Treatment	44.75	37%	N.A.	8%	4%	0	3.60	1.80	0	2.25	1.15
Tuberculin Treatment	Unknown	Assume 100%	0.3%	0.3%	0.3%	← Unknown →			0	0	0
Dental Treatment	43.10	8%	N.A.	57%	29%	0	24.55	12.30	0	20.60	10.30
Medical Treatment Assume	250.00	Assume 90%	28%	26%	27%	70.00	65.00	67.50	7.00	6.50	6.75
Total Treatment	-	-	-	-	-	$ 73.75	$ 97.95	$ 65.85	$ 9.15	$ 31.55	$ 19.90
Total Health Services	-	-	-	-	-	$101.15	$139.15	$120.25	$ 26.35	$ 55.60	$ 39.60
Personnel, Transportation etc.	80.00	8%	All	All	All	80.00	80.00	80.00	74.00	74.00	74.00
GRAND TOTAL	-	-	-	-	-	$181.15	$219.15	$200.25	$100.35	$129.60	$113.60

* Derived from usable data reported by Health Start projects.

These data are presented for three groups of children: from birth to six years of age, from three to six years of age and from birth to six. The data are displayed in this manner to show Health Start results as well as cost projections which could be used for programs serving particular age groups, for example, Head Start. The evaluators feel strongly that health delivery cost estimates (for an approach as used in Health Start) should include personnel and other costs because more than direct payment for health care is involved in delivering health services.

While Table VII-5 can be useful to budget planners (for example, in making budget requests of Congress or in planning the health component of local projects), it is important to emphasize the variability of total costs and costs to OCD across Health Start projects.

Using Health Start cost and incidence data the evaluators estimate that if all required tests and screens are given to a group of 100-200 children (from birth to six years of age) and all needed treatment is completed, it would cost an estimated $200 a child.[1] (If the same proportion of donated services were received as in Health Start; the cost of serving the same age group would be $113 a child. If only children over three years old were served, the total cost of providing them with Health Start-like services would be $219 a child and $129 a child with "coordination.")

It is important to keep in mind that Health Start dollars provided only one-time case finding and treatment for the children enrolled. Even though the services are unknown, 1971 data show that the average annual cost for

1. A similar estimate was made in the first year evaluation of the Health Start program. Less data were available in the 1971-72 program; however, the nominal cost was assumed to be approximately $200/child. See Health Start: Interim Analysis and Report, Joe N. Nay et al., The Urban Institute, January 1972.

health services for individuals under 15 years in the U.S. was approximately $165.[1] The annual cost for AFDC Medicaid recipients in California under five years old was about $184 per child in 1973 dollars.[2] None of these sources reflects the cost of a year's comprehensive health care. Because comparable data were not available on a one-time case finding and treatment program similar to Health Start, no conclusions can be made about the relative cost of the approach taken in the Health Start program.

F. Conclusions and Recommendations

1. Conclusions

a. Health Start projects varied greatly in grant size, amount of grant spent, per child funding level, expenditures for different types of health services and amount of coordinated resources generated.

b. About one-fourth of grant expenditures across all projects was used for direct health service delivery, the remainder was used primarily on personnel and to a lesser extent on transportation and other administrative items.

c. For every dollar of grant money expended, Health Start projects generated and used more than 20 cents for other sources.

d. Health Start grant funds were used for most of the screening and testing done on the children enrolled. Health Start also paid for most of the costly dental treatment. For the relatively few children who needed expensive medical treatment, however, other agency resources were generally available and used. The value of such health care was difficult, if not impossible, for Health Start projects to estimate.

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1. For the year 1971 the reported expenditures on health in the U.S. were $358 per person ("National Health Expenditures, 1929-71," Social Security Bulletin, January 1972). However, cost per child is lower than the average. In 1962 (as reported by the National Center for Health Statistics, Series 10, Number 9), the cost per person under 15 years old was 46 percent of the average annual cost; consequently, the estimate here ($165) is 46 percent of $358.

2. Computed from a 2 percent sample of the California Medicaid population FY 1968-1969.

e. Analysis of the data showed that providing one time case-finding and treatment services to approximately 100-200 children from birth to six years of age in a program like Health Start would cost approximately $200/child. If the same fraction of services could be generated from other sources as in Health Start, the cost per child could be reduced to $113. If only children from three to six years of age would be served, the total cost would be higher due primarily to additional dental needs.

2. Recommendations

Cost data similar to those presented in this report could be used in the Head Start program not only for Congressional budget requests but also in reviewing project proposals and budgets. If OCD required Head Start grantees to prepare budget justifications for estimated health services costs (including those expected to be incurred by some other agency), Head Start projects probably would be more successful in planning and budgeting for their health service components than were Health Start projects.

CHAPTER VIII

BACKGROUND AND HEALTH CHARACTERISTICS OF HEALTH START CHILDREN

Health Start children brought with them various characteristics, some of which appeared to relate to health care needs and others to project results. This chapter discusses selected characteristics of the children. They are: sex, age, ethnicity, mobility (migrant/non-migrant), Medicaid status, location (urban, rural, etc.), recent health care, pre-existing medical conditions, immunization status and physical growth (size).

A. Sex and Age of Children

Almost an equal number of boys and girls were enrolled in the Health Start program. A total of 50.8 percent were males; the small variation across projects is presumed to be random. There was considerably more variation across projects in the average age of children enrolled. The average age for one project was 18 months while the average age for another was almost five years (57 months). The average age of the children in the median project was slightly under three years (34 months).

1. Age Distribution

Table VIII-1 shows that 37 percent of the children across all projects were under three years of age. About 5 percent of the children enrolled were above the age limit of six years as specified in the Health Start guidelines.

TABLE VIII-1

AGE DISTRIBUTION OF HEALTH START CHLDREN

(Source: Health Start Quarterly Health Report, June 1973)

Age in Months (At time of enrollment)	Percent of children
0 to 12	10.3%
13 to 24	12.6
25 to 36	15.6
37 to 48	20.0
49 to 60	23.9
61 to 72	14.0
73 to 84	3.2
Above 85	0.4
TOTAL	100.0% (N=9,624)

2. Relationship of Age to Medical Conditions Requiring Treatment

Children under three years of age had 21 percent more medical conditions requiring treatment than did those over three years of age. For every 1000 children screened, the average number of medical conditions detected was 382[1] for children under three, as compared to 317[2] for children over three years of age. The number of medical conditions for both age groups is shown in Table VIII-2.

1. Standard error of estimate: 19.
2. Standard error of estimate: 17.

TABLE VIII-2

MEDICAL CONDITIONS DETECTED IN HEALTH START
CHILDREN UNDER AND OVER 36 MONTHS OLD

Number of Medical Conditions Detected	Children Under 36 Months Screened	Children Over 36 Months Screened
0	68.7%	72.7%
1	25.4	23.3
2	4.9	3.6
3 or more	1.0	0.4
TOTAL	100.0% (2,578 children- 71% of enrolled)	100.0% (4,662 children- 77% of enrolled)

Although younger children had more medical conditions, the conditions detected in children under 36 months and over 36 months were almost equally severe. Table VIII-3 shows that, of the children found to have medical conditions, over one-fourth from both age groups had severe conditions (likely to interfere with their future health or performance).

TABLE VIII-3

DISTRIBUTION OF CHILDREN OVER AND UNDER 36 MONTHS
HAVING MEDICAL CONDITIONS (BY DEGREE OF SEVERITY) [1]

SEVERITY OF WORST CONDITION		Children Under 36 Months	Children Over 36 Months
SEVERE	Likely to interfere with future health or performance if not treated	29.7%	27.5%
MILD	Unlikely to interfere with future health or performance if not treated	46.1	44.7
NO TREATMENT NECESSARY	Condition detected, no treatment necessary	24.2	27.8
TOTAL		100.0%	100.0%

1. Number of children having medical conditions and with degree of severity reported: Under 36 months-809; Over 36 months-1,273.

There are only eight particular types of medical conditions where statistical differences were found in the children under 36 months and children over 36 months. Six of them were more prevalent in younger children: nutritional deficiencies, acute upper respiratory diseases, chronic respiratory diseases, diseases of the ear, skin disorders, and gastro-intestinal disorders/diseases. Table VIII-4 shows that two conditions found more often in older children (over 36 months) were heart murmurs--requiring specialist consultation --and behavioral/emotional problems. For both age groups, nutritional deficiency was the most prevalent health condition detected by the medical screening (5 percent of the children screened were found to have a nutritional problem).

Younger children had more medical conditions needing treatment; however, older children were in greater need of dental care. Dental treatment (restoration and extraction of teeth) was rarely needed for children under 36 months, yet dental diseases were prevalent in children over 36 months. Extraction data can be considered a measure equivalent to the severity of medical conditions, that is, for a child under six to need teeth extracted is a serious problem. Table VIII-5 shows that there is a strong trend related to age: the older the child the more likely it is that he has had teeth extracted.

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TABLE VIII-4

MEDICAL CONDITIONS FOUND BY SCREENING

Type of Medical Condition	PERCENT OF SCREENED CHILDREN WITH CONDITION			Significance Level for Difference in Age Groups	Percent of Conditions That are Severe
	Children Under 3 Yrs.	Children Over 3 Yrs.	All Screened Children		
One or more of the below	31.3%	27.3%	28.7%	.001	----
Nutritional deficiency	7.64	3.99	5.25	.0001	23%
Acute upper respiratory diseases (lasting less than three months)	5.16	3.13	3.86	.001	20
Disease or infections of the ear	3.84	2.72	3.11	.01	33
Skin disorders	3.53	2.42	2.81	.01	7
Hernia (including unbilical, inguinal, or femoral)	1.90	2.23	2.14	----	13
Genito urinary disorders/diseases	1.71	2.34	2.12	----	13
Muscular-skeletal (includes orthopedic)	2.29	1.74	1.94	----	26
Nose, throat disorders/diseases (includes tonsils, adenoids)	1.94	1.91	1.92	----	14
Eye disorders (including strabismus and conjuctivitis)	1.36	1.63	1.52	----	41
Heart murmur (requiring specialist consultation)	.89	1.61	1.34	.02	17
Gastro intestinal disorders/diseases	1.71	1.03	1.26	.02	11
Hematological disorders (in blood-forming organis)	1.20	.92	1.01	----	50
Other	.85	1.09	1.00	----	14
Behavior/emotional (includes hypertension)	.47	.99	.79	.02	53
Chronic respiratory diseases (sinusitis, bronchitis)	.85	.43	.58	.05	29
Neurological disorder/dysfunction (includes cerebral and other palsies, hydrocephalus)	.50	.47	.48	----	54
Asthma	.35	.49	.44	----	31
Hay fever and other allergies	.39	.39	.38	----	29
Mental retardation	.23	.39	.34	----	72
Communicable disease (chicken pox)	.39	.28	.32	----	43
Enuresis (bed wetting)	.16	.32	.26	----	5
Heart disease (including patent ductus)	.23	.21	.23	----	41
Learning disability	.23	.21	.22	----	31
Convulsive disorder (seizure, epilepsy)	.12	.26	.21	----	27
Injuries (burns, lacerations, contusions)	.12	.15	.14	----	60
Metabolic disorder (includes diabetes)	.08	.11	.10	----	86
Serious speech problems	.04	.06	.05	----	50
Disorders of endocrine gland (thyroid, parathyroid, adrenal)	---	.06	.04	----	33
Liver diseases (includes hepatitis, cirrhosis)	.08	----	.03	----	50
Serious visual impairment	---	.02	.01	----	100
Lead poisoning	.04	----	.01	----	100

TABLE VIII-5

DISTRIBUTION BY AGE OF
CHILDREN HAVING EXTRACTIONS

CHILDREN HAVING TEETH EXTRACTED	AGE OF CHILDREN IN MONTHS							TOTAL
	0-12	13-24	25-36	37-48	49-60	61-72	72+	
Percent with dental work started	--	-- (3)*	-- (18)	5.9% (51)	12.5% (72)	9.5% (74)	45.9% (11)	10.5% (229)
Percent with dental work completed	-- (7)	9.1% (11)	6.0% (83)	5.7% (353)	10.9% (717)	17.7% (447)	27.7% (166)	14.5% (1784)
TOTAL	(7)	7.1% (14)	4.9% (101)	5.7% (404)	11.0% (789)	16.5% (521)	28.8% (177)	14.1% (2013)

* ( ) - Number of children in sample.

B. Ethnic/Cultural Background

The major ethnic/cultural group in Health Start was white: 39 percent of the children enrolled. Blacks composed the next largest group with 34 percent of the total, and Mexican-Americans accounted for 21 percent of the children. Three percent were Puerto Rican, 2 percent American Indian, and 1 percent "other." Projects varied considerably in their composition. In fact, two projects, Baltimore and Charleston, were over 99 percent black; Penobscot, Mora and Coos Bay were over 99 percent white; Dayton, Albuquerque, and Center were all over 80 percent Mexican-American, and, of course, the two San Juan projects (summer and full year) were 100 percent Puerto Rican.

Of the three largest groups (whites, blacks, Mexican-Americans), Mexican-Americans had the least amount of care in the 12 months previous to Health Start and were the least likely to have access to care after Health Start. Table VIII-6 shows that only 15 percent of the Mexican-American children were enrolled in the Medicaid program, while 29 percent of the white children and almost one-half of the black children were enrolled in Medicaid.

TABLE VIII-6

A COMPARISON OF HEALTH START CHILDREN
BY MAJOR RACIAL GROUPS ENROLLED

	Black	Mexican-American	White
Percent eligible for Medicaid and enrolled prior to Health Start	45.4%	15.3%	28.9%
and enrolled during Health Start but not enrolled	0.6	0.7	1.4
Not eligible for Medicaid	3.0	2.4	21.3
Eligibility not Known	29.3	77.7	40.8
	21.7	3.9	7.6
TOTAL	100% (3175)*	100% (2053)	100% (3690)
Distribution of Known Immunization Status complete prior to Health Start	31.7%	12.6%	13.5%
completed during Health Start	33.7	28.0	40.7
incomplete at end of Health Start	34.6	59.4	45.8
TOTAL	100% (3133)	100% (1913)	100% (3703)
Known Crisis Medical Care in Previous 12 months	10.8%	28.2%	21.9%
Known Preventive Medical Care in Previous 12 months	22.9	5.6	17.2
Known Dental Care in Previous 12 months	2.9	4.3	5.2
	(3198)	(2050)	(3674)
Percent with known assurances future dental and medical funds and services	21.9%	2.5%	11.9%
	(3282)	(2088)	(3822)
Percent of children who are migrants	20%	45%	4%
	(3250)	(2031)	(3516)
Average number of screening tests per enrolled child	5.8	4.7	4.9
	(3302)	(2088)	(3822)

*( ) - Number of children in sample.

(continued)

TABLE VIII-6 (Continued)

	Black	Mexican-American	White
Percent of children tested completing dental treatment	68% (387)	72% (676)	79% (962)
Percent of children tested completing medical treatment	37% (612)	57% (446)	57% (742)
Percent of children tested having one or more severe medical conditions	6.6% (2557)	8.4% (1436)	9.6% (2866)
Average number of health education encounters with child with child's parents	1.1 1.3 (3302)	1.4 1.2 (2088)	1.4 2.1 (3822)

Screening Test Results

	Percent of Group Screened			Percent of Group Screened Needing Treatment		
Test	Black	Mexican-American	White	Black	Mexican-American	White
Hemoglobin *	28%	18%	39%	12%	12%	7%
Hematocrit *	27	33	32	14	13	14
Tuberculin	66	51	42	0.3	0.3	0.3
Urinalysis	69	54	61	3	1	3
Vision	75	61	59	5	6	7
Hearing	77	61	53	3	3	4
Speech	28	38	32	6	5	7
Intestinal Parasite	21	0	3	13	-	30
Lead	1	0	14	-	-	11
Psychological	13	7	6	11	12	6
Sickle Cell	42	2	1	5	-	-
Strep	0	6	2	-	34	18
Denver Development	13	9	17	5	5	5
Dental	41	52	50	43	62	51
Medical	77	74	75	24	29	26
Base N for all except dental	3022	2088	3825	3022	2088	3825
Base N for dental	2038	1450	2336	2083	1450	2336

*Approximately 8 percent of the enrolled children received both blood tests.

Few Mexican-Americans entered the program with their immunizations up-to-date (13 percent). Approximately the same percent of white children were in need of immunizations when they entered Health Start; however, over twice the number of white children completed their immunizations by the end of the year. A substantially higher percent (32) of black children entered the program with immunizations up-to-date. The same pattern is in evidence in reported arrangements for on-going health care; only 2.5 percent of the Mexican-Americans were assured of care (medical and dental funds and services), while almost 12 percent of the white children and 22 percent of the black children were reported to have access to future care.

As for evidence of health care needed, except for dental, the three groups of children did not vary greatly on the percent of health problems detected through the required screenings and tests. Sixty-two percent of the Mexican-American children who received a dental exam were found to need treatment, 51 percent of the white and 43 percent of the blacks needed dental treatment. Almost one-half of the Mexican-American children were migrants, which could explain their lack of access to care and the resultant need for care.

C. Mobility: Migrants/Non-Migrants

Almost one out of every five children in Health Start was a migrant; however almost 90 percent of the migrant children were enrolled in four projects: Ft. Lauderdale, The Dalles, Dayton and Orlando.

The 1971-72 Health Start evaluation findings pointed to particular weaknesses in migrant programs[1] and recommended that a special "migrant"

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1. See Health Start: Final Report of the Evaluation of the First Year Program, Leona M. Vogt and Joseph S. Wholey, The Urban Institute, September 1972.

model be developed for the second year Health Start program. This recommendation was not followed, and again (as Table VIII-7 shows) migrant children entered Health Start with less care than the non-migrant children. They needed more dental treatment, received fewer screening tests, and had almost no assurances of on-going care.

TABLE VIII-7

COMPARISON OF MIGRANT AND NON-MIGRANT CHILDREN

Characteristics of Children	Migrants	Non-Migrants
Percent known to be eligible for Medicaid	23% (1832)*	48% (7117)
Percent of children with incomplete immunizations on enrollment	82% (1803)	79% (6959)
Percent of children with immunizations incomplete at end of program	58% (1803)	41% (6959)
Percent with known dental care in previous year	1.4% (1846)	5.1% (7042)
Percent with known medical care in previous year	10% (1797)	45% (7112)
Percent of screened needing dental treatment	63% (655)	50% (3874)
Percent of screened needing medical treatment	25% (1107)	28% (5868)
Average number of screening tests per child	3.8 (1859)	5.9 (7395)
Percent of children with records transmitted to another agency after Health Start	38% (1859)	69% (7395)
Average number of health education encounters with child	1.5 (1859)	1.4 (7395)
Average number of health education encounters with parents	1.1 (1859)	1.8 (7395)
Percent of children with assured future care: dental and medical funds and services	4% (1859)	15% (7395)
Percent of children with no known future dental and medical funds or services	45% (1859)	31% (7395)

* ( ) - Number of children in sample.

D. Medicaid Status of Health Start Children

A large number of children (42 percent) were not eligible for Medicaid benefits primarily because of family income or employment status. Approximately one-third of the children were enrolled in Medicaid (Title XIX)--most of them prior to entering Health Start. (Approximately 1 percent enrolled in Medicaid during the Health Start year.) Ten percent of the children met the Medicaid eligibility requirements of the states in which they resided, yet were not enrolled and could not receive Title XIX benefits.

The Medicaid status of the children was to a large extent dependent on the project in which the children enrolled. For example, three-fourths of the children eligible but not enrolled in Medicaid were in two Health Start projects: one-half in Penobscot and one-fourth in Mora. Both of these projects indicated in The Urban Institute Medicaid survey that the parents considered being on Medicaid a "welfare stigma."

Health Start enrollment in Medicaid of eligible children was strongly dependent on the age of the child, as Figure VIII-1 illustrates. Infants eligible for Medicaid tended not to be enrolled, but the fraction of eligible children not enrolled decreased as the child got older.

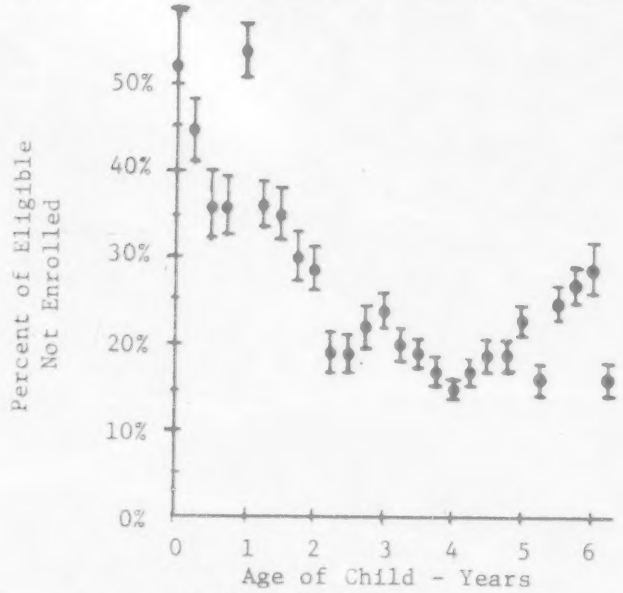

Figure VIII-1: Percent of Eligible Children Who Are Not Enrolled in Medicaid by Age of Child (with ± one Standard Error of Estimate)

Table VIII-8 reveals that the Health Start children known to be enrolled in Medicaid had more care in the 12 months prior to entering Health Start than did children eligible (yet not enrolled) and children not eligible for Medicaid. Fewer children enrolled in Medicaid needed dental treatment, but they had a slightly higher average number of teeth extracted. Yet continuous

TABLE VIII-8

HEALTH STATISTICS OF HEALTH START CHILDREN WITH KNOWN MEDICAID STATUS

	Enrolled In Medicaid	Eligible But Not Enrolled	Not Eligible
Percent of children with known dental care in previous 12 months	5% (3003)*	1% (916)	5% (4047)
Percent of children with known medical care in previous 12 months	45% (2976)	16% (925)	41% (4089)
Percent of children with known up-to-date immunization	22% (2956)	9% (959)	16% (3988)
Percent of screened needing dental treatment	43% (1655)	74% (359)	53% (2100)
Percent of screened needing medical treatment	26% (2251)	23% (738)	26% (3161)
Percent of dental treatments completed	74% (705)	95% (262)	71% (1111)
Percent of medical treatments completed	43% (574)	69% (169)	55% (821)
Average number of caries repaired per dental treatment	3.8 (619)	1.1 (259)	3.8 (994)
Average number of extractions per dental treatment	0.30 (619)	0.18 (259)	0.20 (994)
Percent of children with known source of future funds for medical care	61.5% (3114)	23.9% (983)	10.0% (4180)
Percent of children with known source of future funds for dental care	54.9% (3115)	3.9% (983)	8.6% (4181)
Percent of children with known source of funds and services for future medical and dental care	31.9% (3115)	1.5% (983)	4.7% (4181)

*( ) = Number of children in sample.

enrollment in Medicaid was not certain. Of the children who were enrolled in Medicaid when they entered Health Start, 47 percent were reported not to have access to Medicaid funds after Health Start.[1] Over 61 percent of the children enrolled in Medicaid had known sources of some funds for future medical care and approximately 55 percent for dental care.

Of the three groups considered, children eligible but not enrolled in Medicaid had received the least amount of previous care. Even though a higher percentage of them needed dental care, they needed the fewest teeth extracted and they completed almost all of their dental care. Approximately one-fourth of these children had access to some funds for health care at the end of the year--possibly even Medicaid funds. However, this group of children tended to have very little assurance of on-going comprehensive care. Only 1.5 percent had access to future medical and dental care: funds and services.

E. Location of Children

Health Start projects were classified by the evaluators into four categories: urban, rural, mixed (urban and rural) and migrant. Children in the four categories differed markedly on the various characteristics shown in Table VIII-9. The only exception was the average number of caries repaired. Over one-half of the children in urban projects were enrolled in Medicaid before entering Health Start, compared to 37 percent of the children in "mixed" projects, 32 percent in rural projects, and 22 percent in migrant projects. Urban children also had more care in the 12 months prior to entering Health Start. Of the children tested, more rural children needed dental and medical treatment than the other groups. The most striking finding in Table VIII-9 is that only 0.2 percent of the children in migrant projects were known to have access to future care (medical and dental funds and services)!

1. The average period of enrollment in Medicaid is 18 months. Children tend to go on and off Medicaid. This is a key point to remember for planning and budgeting health components in programs like Head Start.

TABLE VIII-9

CHARACTERISTICS OF CHILDREN IN
URBAN, MIGRANT, AND RURAL PROJECTS

Characteristic of Children	Type of Project			
	Urban	Mixed	Rural	Migrant
Percent migrants in project	0%	16%	2%	88%
Percent enrolled in Medicaid before Health Start (or all children with known Medicaid status)	54%	37%	32%	22%
Percent with up-to-date immunization at time of enrollment	29%	18%	15%	18%
Percent of screened needing dental treatment	33%	52%	64%	60%
Percent of screened needing medical treatment	22%	29%	31%	21%
Average number caries repaired per dental treatment	3.5	3.6	3.6	3.3
Percent with known dental care in previous year	9%	6%	2%	2%
Percent with known medical care in previous year	66%	49%	30%	9%
Percent with known future care (medical and dental funds and services)	16%	23%	14%	0.2%
Number of children in types of projects	2,525	1,086	4,366	1,854

F. Recent Health Care and Pre-Existing Health Conditions

The earlier discussion showed that three groups of children were more likely to have had some type of health care in the 12 months prior to entering Health Start. They were urban children, non-migrants and children enrolled in the Medicaid program.

Table VIII-10 shows that only 3 percent of the children were known to have had both medical care (preventive or crisis) and dental care within 12 months prior to Health Start. Twenty-one percent of the children had some crisis medical care (but no preventive medical care), and approximately 17 percent had some preventive care. Nothing was known about the previous he health care status of over 14 percent of the children.

TABLE VIII-10

AMOUNT OF MEDICAL AND DENTAL CARE
IN THE YEAR PRIOR TO HEALTH START

	Medical Care in Past 12 Months				
	Only Crisis Care	Preventive Care	No Care	Unknown	TOTAL
Dental Care Within Past 12 Months					
Some	1.3%	2.1%	0.7%	0.1%	4.2%
None	13.4	6.8	27.2	2.9	50.2
Too Young	5.4	5.6	9.9	6.5	27.6
Unknown	0.5	2.0	0.9	14.5	18.0
TOTAL N = 9,294	20.6%	16.5%	38.7%	24.1%	100%

Children varied across projects in the amount of previous care they had. An average of over 90 percent of the children in six projects[1] had not received any dental care in the 12 months prior to Health Start, while the average over all projects was 50 percent. In two projects (Penobscot and Tom's River) over 95 percent of the children had no medical care in the previous 12 months, while for all projects the average was 39 percent.

Children who were not known to have medical care in the 12 months prior to entering Health Start (those reported as having "none" and "unknown") received fewer tests in the Health Start program and had less chance of assurance of continuing health care after Health Start was over. (See Tables VIII-11 and VIII-12.

TABLE VIII-11

AVERAGE NUMBER OF TESTS
AND PREVIOUS MEDICAL CARE

Children Receiving Medical Care in Previous 12 Months	Average* Number of Screening Tests Per Child	Required Tests	Optional Tests
Crisis (N = 1941)	6.5	5.3	1.2
Preventive (N = 1553)	6.6	5.2	1.4
None (N = 3683)	5.2	4.4	0.8
Unknown (N = 2248)	4.2	3.7	0.5

* Averages have a standard error due to sampling of less than 0.1 in the worst case.

1. San Juan (Summer), Fairmont, (both projects), Orlando, Portageville, and Coos Bay.

TABLE VIII-12

THE RELATIONSHIP OF PRIOR MEDICAL CARE
TO FUTURE HEALTH CARE

Medical Care in Last 12 Months	Percent of Children with no Assurance of Funds or Services for Dental or Medical Care
Crisis	29.1%
Preventive	29.6%
None	27.2%
Unknown	49.5%

A child's need for care (measured by his problems detected in Health Start) related to the type and amount of care he had received within the 12 months prior to entering Health Start. Table VIII-13 shows that children having previous crisis medical care were more likely to need medical care in the Health Start program. Having preventive medical care reduced the need for medical treatment, but twenty-one percent of the children having preventive care in the previous year were still found to be in need of some medical treatment.

TABLE VIII-13

PREVIOUS MEDICAL CARE STATUS AND
NEED OF MEDICAL CARE

	Medical Care In Previous Year			
	Crisis Only	Preventive	None	Unknown
Percent of screened needing medical treatment	37%	21%	24%	27%
Number of children screened by category of past care	1,601	1,307	2,632	1,570

The children more likely to have had severe medical conditions (one-fourth of all those found with medical conditions) were children having medical care in the previous year. Table VIII-14 shows that children having crisis medical care had more severe conditions than children with some preventive medical care. Because only 1.5 percent of the children tested and found to need medical treatment were already under care for the condition found, the previous medical care of the Health Start children rarely was related to prior medical conditions. Therefore, having previous medical care did not greatly reduce the need of medical care for Health Start children.[1]

TABLE VIII-14

INCIDENCE OF SEVERE MEDICAL PROBLEMS
IN CHILDREN WITH PREVIOUS MEDICAL CARE

Category of Children: Type of medical care in previous year	Result of Medical Screening: Percent of children with one or more severe medical conditions (Standard Error of Estimate)
Crisis Care	12.9% (0.3%)
Preventive Care	7.5% (0.3%)
No Care	4.0% (0.1%)
Unknown	3.1% (0.2%)

1. For other screenings and tests, less than 1 percent of the children tested were already under care for the health problems detected. See Appendix D for overview of health services component.

On the other hand, having some recent dental care did reduce slightly the need for dental care during the Health Start year as Table VIII-15 shows. Children having known previous dental care did have more caries repaired--but fewer extractions. One contention is that dental care prevents a child's teeth from deteriorating to the point that extracting teeth becomes the only feasible treatment.

TABLE VIII-15

PREVIOUS DENTAL CARE AND CURRENT DENTAL STATUS

Dental Characteristics of Children	Previous Dental Care			
	Within Previous Year	None in Previous Year	Too Young	Unknown
Number of children by previous care	394	4,768	2,604	1,685
Percent of screened needing dental care	47%	53%	31%	59%
Average Number Extractions per child treated (standard error of estimate)	0.21 (.06)	0.29 (.03)	0.07 (.06)	0.45 (.07)
Average Number Caries Repaired per child treated (standard error of estimate)	4.4 (0.4)	3.6 (0.1)	2.2 (0.5)	3.3 (0.3)

C. Immunization Status of Health Start Children

Health Start projects reported great variation in the immunization status of the children at enrollment in the Health Start program. Only 19 percent of the children across projects were considered to be "up-to-date" in their immunization schedule at Health Start enrollment. The Baltimore project

reported that 58 percent of the children needed no immunizations, yet seven projects reported that almost 99 percent still needed them.

H. Size of Children

1. Height and Weight

Because the height and weight of the Health Start children were known only within a three month interval (reported in one of the Quarterly Health Report periods), it was necessary to develop several assumptions to set the bounds of height and weight of children: (1) that the measurements were taken during the quarter in which the results were reported, and (2) that the measurements could have been taken at the beginning, in the middle, or at the end of the three month interval. Therefore, the evaluation provides data to account for the lack of precision of age and time of measurement.

The evaluators developed size categories for Health Start children using standard height and weight tables.[1] Taking into consideration the age and sex of the children, the extremes (under the 10th and over the 90th percentiles in height and weight) for Health Start children were determined. Table VIII-16 presents height and weight data with three possible age variations:

HI - The age at the end of the three month interval

MID - The age in the middle of the three month interval

LO - The age at the start of the three month interval.

1. Waldo E. Nelson, Victor C. Vaughan, R. James McKay. Textbook of Pediatrics, Philadelphia, W. B. Saunders & Co., 9th Edition, 1969, pp. 42-51.

If Health Start children had the same distribution of height and weight as the population of "standard" children, then one would expect Table VIII-16 to show 10 percent of the children under the 10th percentile, 80 percent between the 10th and the 90th, and 10 percent above the 90th percentile. The effect of underestimating age (the "LO" age assumption) would be to overstate the number of children under the 10th percentile and understate the number over the 90th percentile. The effect of overestimating the age (the "HI" age assumption) would have the opposite effect.

TABLE VIII-16

DISTRIBUTION OF HEALTH START CHILDREN ACCORDING TO STANDARD HEIGHT AND WEIGHT PERCENTILES FOR VARIOUS AGES

Age Assumption	Distribution of Children By Height					
	Males (3,625 Children)			Females (3,542 Children)		
	Under 10th Percentile	Between 10th and 90th	Over 90th Percentile	Under 10th Percentile	Between 10th and 90th	Over 90th Percentile
HI	42.2%	46.2%	10.5%	36.4%	56.6%	6.9%
MID	37.1	48.7	14.2	30.4	60.0	9.7
LO	31.1	49.8	19.0	24.8	61.3	13.9

Age Assumption	Distribution of Children By Weight					
	Males (3,663 Children)			Females (3,576 Children)		
	Under 10th Percentile	Between 10th and 90th	Over 90th Percentile	Under 10th Percentile	Between 10th and 90th	Over 90th Percentile
HI	23.1%	64.0%	12.8%	24.3%	68.9%	6.9%
MID	19.2	64.9	15.9	20.7	70.7	8.7
LO	15.3	64.9	19.8	16.5	72.1	11.4

(Standard error due to sampling = $\pm$ 0.8%)

The data in Table VIII-16 indicate that Health Start children had a considerably higher chance of being shorter and underweight in relation to their age and sex than did "average" children. This conclusion is not obscured by the uncertainty of the children's ages. Within the error limits imposed by sampling and age uncertainty due to reporting, the percent of children over the 90th percentile is not significantly different from the "average" population. The one exception is boys' weight. The male children were more prone to be overweight; between 3 and 10 percent more of the Health Start boys were over the 90th weight percentile.

Table VIII-17 shows the joint distribution of height and weight of children (using the "MID age" assumption). If "overweight" in relation to height, age, and sex is defined as being below the diagonal (upper left to lower right) in Table VIII-17, then about 28 percent of the boys and 20 percent of the girls were in this category. If "undersized" in relation to age and sex is defined as being below the 10th percentile in height and weight, then 15 percent of the boys and 13 percent of the girls fell in this category. Therefore, there was a marked tendency of the Health Start children to have been either undersized or overweight.

However, no notewrothy correlation was found to exist between the nine height-weight categories (under the 10th percentile, over the 90th, or in between for height and weight) and results of the screening tests given to Health Start children. This supports the textbook admonishment that height and weight information "will be most useful if it is recorded at serial examinations on charts permitting comparisons with standards for each age"[1] rather than at a one-time observation as was available for this study.

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1. Waldo E. Nelson, Victor C. Vaughan, R. James McKay. Textbook of Pediatrics, Philadelphia, W.B. Saunders & Co., 9th Edition, 1969, p. 39.

TABLE VIII-17

JOINT PERCENT DISTRIBUTION OF CHILDREN BY
HEIGHT AND WEIGHT USING THE "MID" AGE ASSUMPTION

Males (3,570 Children)

Weight \ Height	Under 10th Percentile	Between 10th and 90th	Over 90th Percentile	Total
Under 10th Percentile	14.7%	4.3%	0.2%	19.2%
Between 10th and 90th	20.2	38.6	6.2	85.0
Over 90th Percentile	2.2	5.9	7.7	15.8
TOTAL	37.1%	48.8%	14.1%	100%

Females (3,495 Children)

Weight \ Height	Under 10th Percentile	Between 10th and 90th	Over 90th Percentile	Total
Under 10th Percentile	13.4%	6.8%	0.4%	20.6%
Between 10th and 90th	15.5	50.2	5.2	70.9
Over 90th Percentile	1.4	3.0	4.1	8.5
TOTAL	30.3%	60.0%	9.7%	100%

2. Blood Test Results

Children under 36 months of age and below the 10th percentile in height and weight often had low hemoglobin or hematocrit readings. Table VIII-18 shows the percent of "small children"--having height and weight below the 10th percentile for their age and sex--with positive blood test results (needing treatment).

Health Start data show that the results of a blood test (hemoglobin or hematocrit) were very good indicators of whether or not a child would have a medical condition needing treatment. The blood test was a far superior indicator of medical conditions than the small size of the child (relative to the 10th percentiles for height and weight) as is demonstrated in Table VIII-19.

TABLE VIII-18

BLOOD TEST RESULTS FOR SMALL CHILDREN

Percent of Children Needing Treatment as Determined by Blood Test Result

(Standard Error of Estimate)

Age Group	Small Children	Others
3 years and under	12.5% (0.3%)	3.6% (0.3%)
Over 3 years	6.3% (0.6%)	5.2% (0.4%)

TABLE VIII-19

THE INFLUENCE OF HEIGHT, WEIGHT, AND BLOOD TEST RESULTS ON THE PERCENT OF CHILDREN FOUND NEEDING MEDICAL TREATMENT

Percent Needing Medical Treatment

	Age			
	3 years and under		Over 3 years	
Size of Child	Blood Test Result		Blood Test Result	
	Not OK	OK	Not OK	OK
Small	64% (4%)	24% (2%)	53% (5%)	25% (2%)
Not small	57% (4%)	22% (1%)	41% (5%)	22% (1%)

( ) = Standard Error of Estimate

3. Comparison of Hemoglobin and Hematocrit Values of Health Start Children with Those of Children of Other Socio-Economic Groups

The relationship between blood test results (hemoglobin, hematocrit) and socio-economic status of children has been documented: Children from low income families tend to have lower hemoglobin and hematocrit values.[1] Helath Start children have hematocrit and hemoglobin values that are below the values of children in the lowest class used in the Owen study. The results from Health Start are compared to Owen's results in Figure VIII-2 and VIII-3.[2] The figures show for one age group (48-71 months) the percent of children with hemoglobin and hematocrit below given values. The distributions of Health Start children are significantly different (at the 5 percent level)[3] from the socio-economic classes used by Owen.

1. For example see Owen, Lubin and Garry, "Preschool Children in the United States: Who Has Iron Deficiency?" The Journal of Pediatrics, Vol. 79, No. 4, pp. 563-568, October 1971.

2. Similar figures are displayed in Appendix D for different age groups for both the hematocrit and hemoglobin tests.

3. A Kolmogorov-Smirnov two sample two tail test was used.

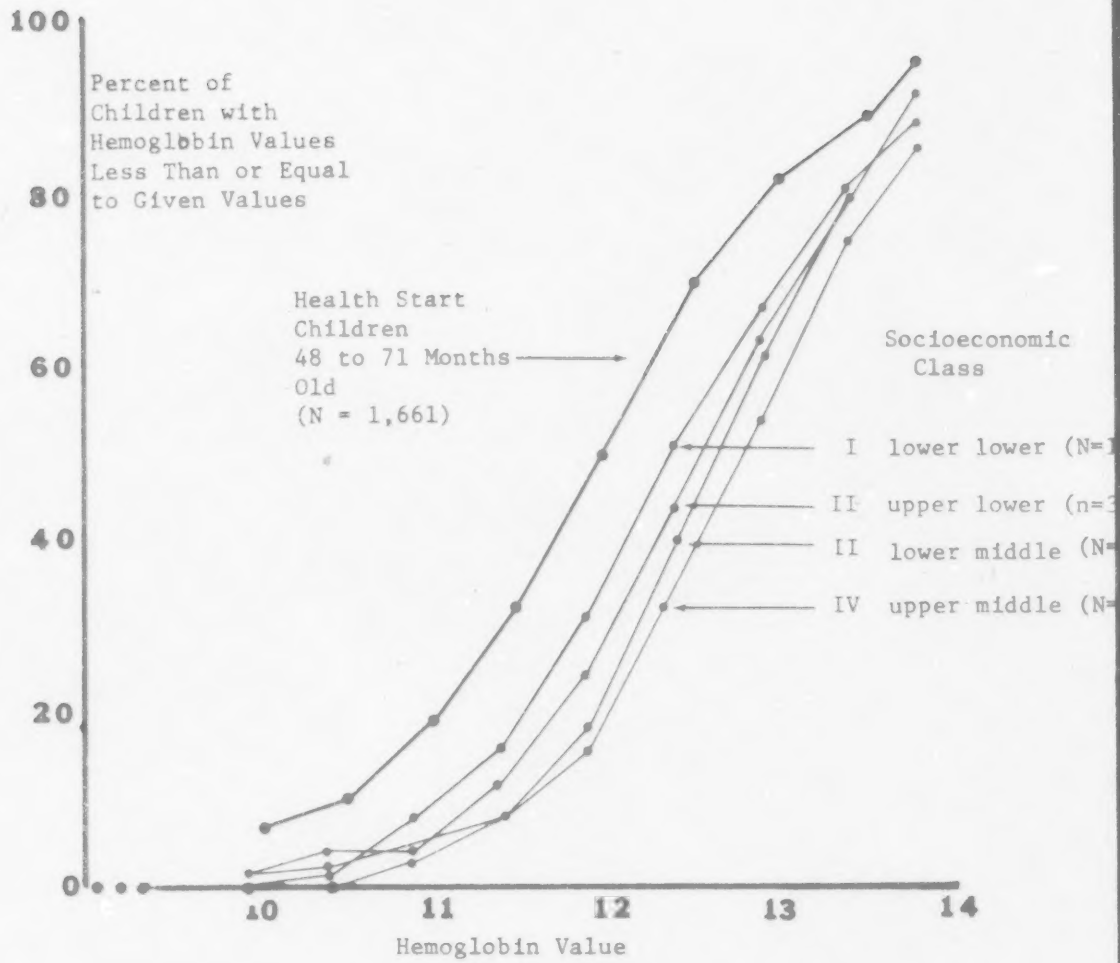

Figure VIII-2 Comparison of Health Start Children (Age 48 to 71 Months) with Four Groups of Children in Another Nationwide Survey of Hemoglobin Values

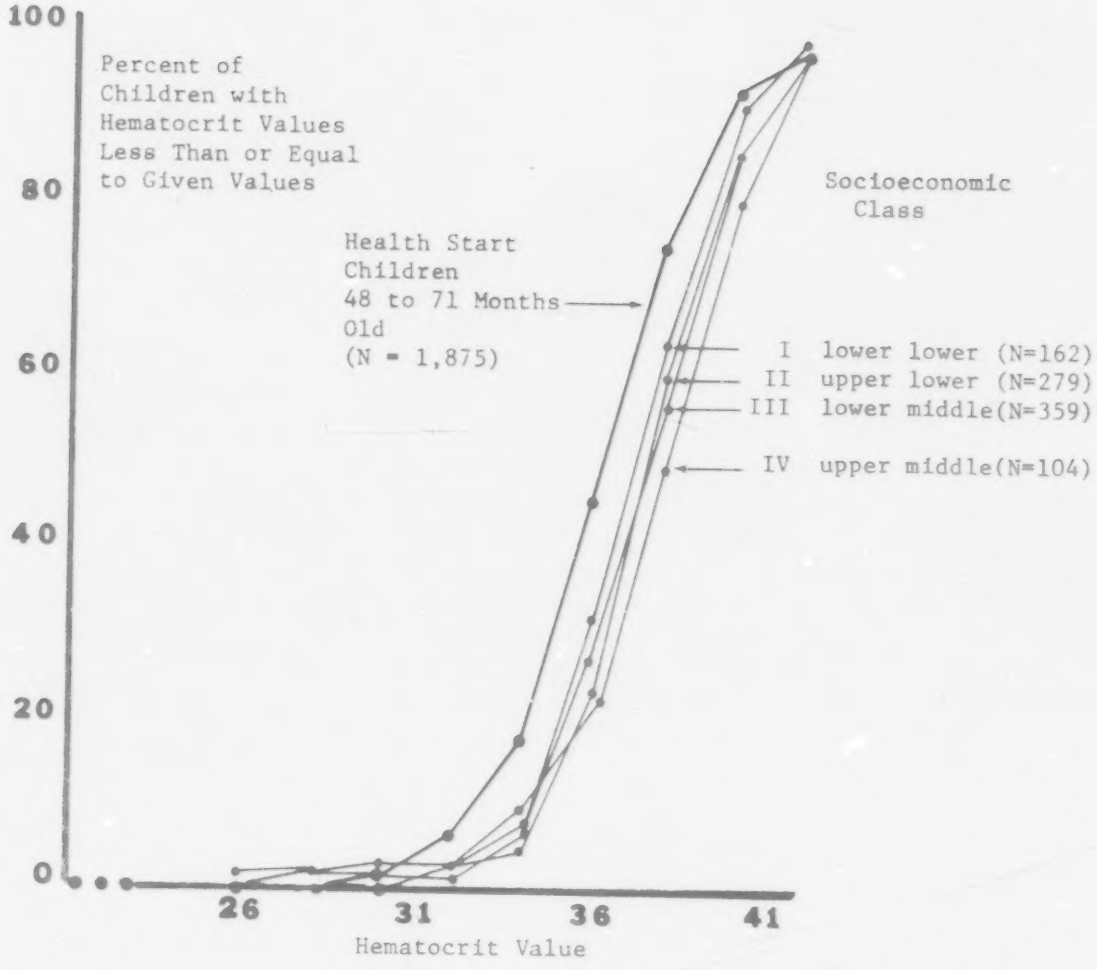

Figure VIII-3: Comparison of Health Start Children (Age 48 to 71 Months) With Four Groups of Children in Another Nationwide Survey of Hematocrit Values

I. Children Exposed to Fluoridated Water

The Health Start data confirm the claims that fluoride reduces decay. Children living in communities with fluoride in the water tended to need less dental treatment than did children in communities without fluoridated water. (See Table VIII-20.) For children needing dental treatment, the presence of fluoride reduced the amount of care needed (here measured by caries repaired and teeth extracted).

TABLE VIII-20

THE EFFECTS OF FLUORIDATED WATER
ON DENTAL STATISTICS

DENTAL STATISTICS	Children in a Project Exposed to Fluoridated Water		
	ALL	SOME	NONE
Percent of children (not considered "too young") receiving dental screening	90%	65%	45%
Percent of screened children needing treatment	26%	59%	64%
Percent of treatments completed	50%	83%	73%
Average number of extractions per child treated	0.22	0.14	0.25
Average number of caries repaired per child treated	2.00	3.46	4.22
NUMBER IN SAMPLE	1,417	3,800	2,498

J. Conclusions and Recommendations

1. Conclusions

a. Age

(1) Thirty-seven percent of the Health Start children across all projects were under three years old.

(2) Although children under three years of age tended to have slightly more medical conditions than did children over three, the conditions detected in the two age groups were almost equally severe.

(3) The older the child the more likely the need for dental treatment.

b. Ethnicity

(1) The major ethnic/cultural group was white (39 percent), followed by blacks (34 percent). Mexican-Americans made up 21 percent of the total.

(2) Of the three major ethnic groups, Mexican-Americans had the least amount of health care in the 12 months prior to entering Health Start, were most likely to need dental care, were least likely to be enrolled in Medicaid, and were least likely to have access to future health care. The same trend occurred for the migrant children. (Most of the migrants in Health Start were Mexican-Americans.)

c. Medicaid Status

(1) Approximately one-third of the children were enrolled in the Medicaid program. Ten percent of the children were eligible but not enrolled and the rest were either not eligible or unknown.

(2) Health Start children were not assured of continued enrollment in Medicaid. Of the children enrolled in Medicaid upon entering Health Start, almost half (47 percent) were reported to not have access to Medicaid funds after Health Start.

d. Location of Children

Urban children tended to have had more health care in the 12 months before entering Health Start and were more likely to be enrolled in Medicaid than were children in rural, mixed (urban/rural) or migrant projects.

e. Previous Care

(1) Fifty percent of all Health Start children had no health care in the 12 months prior to entering Health Start.

(2) Children not known to have had medical care in the 12 months prior to entering Health Start were less likely to receive many tests (and subsequently health care) during Health Start and had less chance of continuity of health care after terminating from Health Start.

(3) Health Start children having crisis medical care in the 12 months before entering Health Start were more likely to need medical care during Health Start.

(4) Children with some type of medical care (crisis or preventive) in the 12 months prior to entering Health Start were more likely to have severe medical conditions.

(5) Only 1 percent of the children found to need medical treatment were already under care for the medical conditions found in the Health Start screening program.

(6) If a child had dental care in the 12 months prior to entering Health Start, he tended to have more caries repaired but fewer teeth extracted.

f. Immunization Status

Even though immunizations generally are available through public health departments, only 19 percent of the Health Start children were on

schedule with respect to their immunizations upon entering Health Start.

g. Growth (Size) of Children

(1) Health Start children were more likely to be shorter and underweight and have lower blood counts (in relation to their age and sex) than were "average" children.

(2) Twenty-eight percent of the boys and 20 percent of the girls were over-weight.

(3) Health Start data show that blood test results are very good indicators of whether or not a child would have a medical condition needing treatment.

h. Effect of Fluoridated Water

Children in communities without fluoridated water tended to need more dental treatment. Over twice as many caries were repaired (per child treated) in projects where none of the children were exposed to fluoridated water as in projects where all the children lived in communities with fluoridated water.

2. Recommendations

Health Start data show that the following types of children are more likely to need health care and, therefore, should be screened first in a case finding and treatment program like Head Start (especially if funds are limited):

- Children who have had recent medical care (especially crisis care). They tend to need medical treatment.
- Young children who are small for their age. They have twice the number of ailments as young children of normal size.
- Children who have abnormal blood readings. They tend to have serious medical conditions.
- Children who are not exposed to fluoridated water (for dental screening). They tend to need more dental treatment.

APPENDIX A

1972-73 HEALTH START GUIDELINES

A-1

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF THE SECRETARY

TO : Assistant Regional Directors
Office of Child Development

DATE: February 29, 1972

FROM : Edward Zigler, Director
Office of Child Development EZ

SUBJECT : Health Start Program Summer 1972

Transmitted herewith are guidelines for the 1972 Summer Health Start program. The emphasis this year will be on developing new techniques in the coordination of resources of other HEW programs to make medical and dental services available to low income preschool children. Your programs should be developed according to the guidelines.

To insure the success of the Health Start effort, you must work closely with representatives of collaborating HEW agencies such as Health Services and Mental Health Administration (HSMHA) and Social and Rehabilitation Service (SRS). Their involvement is essential to meeting the program's objectives. For your information, attached is a copy of SRS's Program Regulation Guide on "Early and Periodic Screening Diagnosis and Treatment of Individuals Under Age 21" and their listing of Associate Regional Commissioners for Medical Services.

I request your cooperation in making Summer Health Start a vital, successful endeavor so that through it we may develop ways of better meeting the health needs of the youngsters we serve.

If you need further information, and assistance contact Mrs. Olive Y. Burner at (202) 755-7768.

Attachments

GUIDELINES FOR HEALTH START 1972

I Goals of Health Start

Health Start is a demonstration program designed to develop, on a limited national basis, a variety of approaches for generating health services for economically disadvantaged preschool children. The program goal is to develop new techniques in the coordination of resources of other HEW programs to make medical and dental services available to these children. A secondary goal is to fill health care gaps in limited resource areas where there is a demonstrated need and the possibility exists for getting such services for children of poverty. The projects are expected to focus on the detection and correction of underlying health problems, on preventive services, on health education for children and parents and on linking children to continuous health delivery arrangements whenever possible.

II Objectives

A. To demonstrate the feasibility of a service coordination approach to health care delivery for low income children in areas where health resources vary from few or none to many.

B. To make health services available and accessible to an increased number of economically disadvantaged children.

C. To develop new ways of assisting preschool economically disadvantaged children through their parents to become linked to health services in areas with limited health resources.

D. To develop new administrative mechanisms which will assure improved utilization of local, state and federal resources in providing health services.

E. To develop an organized health education program for children, parents and staff which is to include basic health principles and concepts. Consumer education related to existing local available health resources will also be developed.

III New Emphasis for 1972

The results of the 1971 program have pointed to the need for a more formalized working relationship between Health Start and existing health resources. On-going collaborative efforts are needed to assist in attaining the stated objectives. Joint planning and agreements that stimulate coordinated use of funds and resources are to be encouraged.

In keeping with this new emphasis, the Office of Child Development, the Health Services and Mental Health Administration and the Social and Rehabilitation Services will conduct a joint effort in planning and administrative support.

To meet 1972 Health Start objectives, local programs will be required to:

1. demonstrate how to maximize coordination of available resources such as Title V, Maternal and Child Health Program or Title XIX, Medicaid, early identification and treatment programs and/or

2. demonstrate how to serve children in areas of limited resources. This may be in a collaborative effort or using predominantly OCD funds.

IV Children to be Served

Children to be served are siblings under age six of younsters currently enrolled in Head Start programs, children on Head Start waiting lists, or other groups of low income children under age six who are not receiving health services. Eligibility will be based on the OEO poverty guidelines or the State Medicaid requirements whichever are higher. Children previously or presently enrolled in a Head Start program or children enrolled in Health Start during the first program year are not eligible for Health Start.

V Health Start Required Project Components and Permissible Variations

All projects must have:

A. Health Coordinator: A coordinator should be employed for a full year for each Health Start project. This may be a full time or part time function in Health Start. Part time employment in a program that relates to or enhances the Health Start program is encouraged where the Health Start Health Coordinator's services are not needed full time. This individual should,at a minimum, be a registered nurse, who is knowledgeable in use of community, state and federal resources and has administrative, teaching and counseling abilities. In specific instances, which must be justified in the program plan, the coordinator may be an individual who is knowledgeable in the area of community health resources and has a minimum of two years of experience in medical service administration. Persons familiar with local Title XIX operations, including eligibility certification, could be considered medical service administrators for the pruposes of this grant.

B. Detection Program of Required Services: Detection services must include screening linked with subsequent diagnostic assessment. Minimum detection services required are:

1. Medical and developmental history
2. Determination of immunizations needed
3. Physical screening
4. Laboratory screening through hematocrit or hemaglobin determination and uninalysis
5. Vision and hearing screening
6. Preliminary dental screening to establish priorities for treatment

C. Treatment Program Linked to Detection Process: An organized treatment program must include:

1. Treatment of all health problems detected
2. Providing needed immunizations
3. Basic dental care services defined as follows:

   a. Diagnostic examination including x-rays necessary to complete needed treatment

   b. Dental prophylaxis and instruction in self care oral hygiene procedures

   c. Topical fluoride application

   d. Restoration of carious (decayed) teeth with silver amalgam, silicate cement, plastic materials, and stainless steel crowns where indicated, with careful consideration for the health of the dental pulp.

   e. Extraction of non restorable teeth and other services required for the relief of pain and infection.

D. Organized Health Education Program

This component must be a planned activity involving a specific set of items to be covered and must be provided to the children enrolled in the program and their parents. During the summer impact period, a group instructional approach is recommended with a one-to-one approach during the remainder of the program year. Group instruction should not be given on a regular classroom basis. Rather, specific topics should be scheduled at specific times as necessary and pertinent. Preferably such times will be coordinated with group health services delivery

activities. For example, if a group of parents is asked to bring their youngsters to a center for mass immunizations, a relevant health lecture could be planned for parents and/or children at that time.

Health education should be given equal priority with delivery of health services in any Health Start program. Grantees should develop imaginative, inexpensive ways to carry out this part of the program.

For parents, the program must cover, as a minimum:

1. Health services available in the community and how to contact and use them to obtain health care for children beyond treatment of health needs detected through Health Start, e.g. treatment of emergencies, or acute episodic illness.

2. How to tell when your child needs medical care

3. Basic personal hygiene

4. Oral hygiene instruction to include the proper use of soft toothbrush and unwaxed dental floss

5. Nutrition

6. Safety and accident prevention

For children, the program should include:

1. Basic personal hygiene

2. Oral hygiene instruction to include the proper use of soft toothbrush and unwaxed dental floss

3. Nutrition

4. Safety and accident prevention

E. Administrative Structure

The structures and procedures must be organized to insure the maximum utilization of existing local resources. The Health Coordinator should have the key role in planning and carrying out this program. Possible sources of recruitment for this position are:

1. a nurse whose time is shared with a relevant title V program
2. a nurse who has functioned effectively in a Head Start program
3. a medical service administrator whose time is shared with a title XIX program and meets requirements in paragraph V above
4. a nurse who can be detailed for the program from a local health department

Program planning should include where available local health providers, the Health Coordinator, representatives of federal State and local programs in the area and regional representative from OCD, HSMHA and SRS.

Regional offices may wish to make funds available to certain proposed grantees for planning purposes.

Detailed records must be kept on all children in order to follow up their health needs and provide an adequate medical record that can be transferred with each child when he leaves the program. Parents must be informed of where their child's health record will be kept.

It is recommended that a professional review committee be established which would provide quality control on expenditures of all treatment funds.

Staff training to insure that every person working in the Health Start program has a clear understanding of program goals, plans, and how to implement those plans is mandatory.

Grantees should determine well in advance of the project start up date a system to identify and enroll the children to be served by Health Start. Local agencies, such as a CAA, health department, school system, etc. should be contacted for lists of children most likely to benefit from the Health Start program. This must be done early because many local resource people will not be available during the summer.

Care should be taken in planning and recruiting to ensure that children in Health Start will not receive health services which will unnecessarily duplicate those to be provided in the coming year, by the public schools, to the same children.

In the appendix are described some approaches or "models" developed during the first year of Health Start that worked out well. Grantees may wish to review these for applicability to their local situation.

VI Optional Components

Once all of the required components have been planned for, additional components which meet local needs can be developed. Examples are: intestinal parasite screening, lead poisoning screening, sickle cell screening, developmental screening, etc. In each case, however, the plan should demonstrate linkages to follow up diagnostic and treatment services.

Transportation, baby sitting and a parent consultant either on a part time or consultant basis may be considered as optional components. The parent consultant would assist the health coordinator in the development and implementation of the health education program.

VII Program Administration

Each region will receive no more than $80,000.00 to launch a Health Start program or programs. Existing Health Start programs should not be asked to write a proposal for 1972 unless they can meet guidelines described above, have additional children to serve, and have demonstrated ability to carry out a program.

A. The National Role

Direct responsibility for the quality and successful operation of Health Start programs will rest with the National Health Start Health Director with assistance from the regions.

A committee will be established of representatives of collaborating HEW agencies to assist in planning, selection, implementation, periodic review and evaluation of the Health Start program.

The headquarters staff will work with the evaluation contractors to provide the regions relative performance data on the first program year to aid in the application, review and selection processes. Headquarters will also provide training and information, coordination and continuing communication among the region, local communities, USPHS Division of Dental Health, American Academy of Pediatrics and the evaluator through a headquarters funded grantee.

B. Regional Role

Each assistant regional director shall designate one person within that regional office to be administratively responsible for Health Start. Such responsibility is to include the establishment of a regional Health Start Committee which is composed of representatives of collaborating HEW agencies such as HSMHA and SRS. This committee should:

1. assist in proposing possible sites

2. solicit proposals

3. recommend which proposals should be funded

4. in conjunction with AAP and USPHS Division of Dental Health provide review and recommendations for technical assistance

5. make grants

6. monitor grantees

C. Eligible Grantees

Acceptable grantees or delegate agencies are agencies who are eligible to receive and administer federal funds. Agencies should be able to ensure delivery of health services and show knowledge of and contact with the population of eligible children as defined above. This should include, but not be restricted to, Head Start grantees. Other possible grantees are hospitals, medical schools, public health departments, school systems, neighborhood health centers, HMO's, etc.

D. Application and Proposal Requirements

Instructions to communities soliciting proposals should require the applicant to:

a. Identify in detail their plan and capacity for conducting each component of service and how they will provide that service.

b. Identify the approximate cost/child for services and the portion of this cost/child to be covered by the Health Start grant and the amount to be generated for the services from other sources.

c. Indicate how local health providers and other resource persons have been involved in the planning process. Such involvement of local health people and facilities is a must in the planning.

d. Describle the population to be served, the applicant's present contacts with this population, the methods of recruiting enrollees and the number of children who will be served.

e. Specify in the plan the manner in which this program will relate to Title XIX (Medicaid) and Title V (Maternal and Child Health) programs.

f. Include as a part of the proposal a time-phased schedule showing planned dates of enrollment, detection, treatment, and health education.

g. Submit, along with a narrative of the proposal, forms required by the region.

E. Selection Process

In each region proposals should be evaluated and priority rated by a committee composed of representatives from HSMHA, SRS, USPHS Division of Dental Health and OCD. Recommendations will be sent to Headquarters NLT May 5. A national committee composed of representatives of OCD, HSMHA and SRS has final concurrence in grantee selection.

Proposals should be evaluated in terms of ability to meet objectives outlined in paragraph II. Regional Selection committee should give priority to those programs that can demonstrate a collaborative approach to provision of health services and have prospects for continuing collaborative efforts in providing needed health services in the future, and/or programs that demonstrate methods of delivering health services in areas of limited resources.

F. Technical Assistance

The regional health liaison specialist who will be hired under terms of the new AAP contract will provide some technical assistance to Health Start programs. Where necessary, non physician technical assistance can be requested through the specialist. In addition, each Health Start program will receive at least two visits from a Pediatric Consultant, one of which should be to plan the program. OCD regional representatives for Health Start programs should work closely with regional HSMHA, SRS and USPHS Dental Division personnel to insure maximum impact of the resources of these other agencies on Health Start.

G. Evaluation

It is expected that the two major questions of Health Start will be answered by the end of the second year. These are:

1. How can health services for low-income children best be coordinated? How feasible is coordination of Federal, state and local resources to meet the children's needs for detection, treatment, entry into an on-going health care system, and health education?

2. What are innovative ways to provide health detection, treatment, entry into an on-going program and education that could be adopted by summer and full-year Head Start programs? What new ways to provide these services are relatively inexpensive, work well and offer promise of reproducibility? What examples of experimental approaches developed in Health Start can be recommended for wider adoption in child programs?

Some of the subquestions to be addressed in the evaluation are outlined below. In most instances the health coordinators will be asked to provide the information in a form to be specified by the evaluation contractor after further refinement of terms and development of measures and indicators.

1. Feasibility of a service coordination approach to health services for children. This effort will evaluate the use of Title XIX and other resources, including (but not limited to) such questions as:

   a. In what ways were services coordinated in areas with many and few resources?

   b. How was this coordination brought about?

   c. What was the anticipated and actual support obtained through coordination? How much was required in direct payments to provide what service to how many children? Under what circumstances was service coordination most effective? What approaches worked best in areas with many and few resources?

   d. What resources existed in area to be served? What new agreements were reached?

   e. Were there any "trade-offs" in providing service through Health Start that meant reduction in number of children reached or level of care ordinarily provided by cooperating agencies?

2. Report on program effectiveness in meeting Health Start goals, including:

   a. Number of children registered through activities initiated by the program.

   b. Number of children served, type of health problem indentified and treatment provided.

   c. The success of the health education component

      - How was health education provided to children, parents and staff?

      - What was the content of the health education program?

      - What did staff, parents and children learn about health education as defined by the Guideline content?

      - How was the health education knowledge put to use?

   d. The success of the entry-into-an-ongoing delivery system component: how many children are entered into an on-going

prevention/treatment health delivery system as a result of Health Start?

3. What innovative approaches to health delivery have been developed that could be used by summer or full-year Head Starts? This will involve a report on the innovative approaches adopted by Health Starts, costs, and their effectiveness with regard to providing detection, treatment, entry into an on-going delivery system, and health education. Effective components or approaches will be highlighted for possible adoption by full-year and summer programs.

Appendix: Project Approaches

All projects should include all of the components specified in the Guidelines: detection, treatment, continuity of care, and health education. It is expected that there will be variation in the resources used and the approaches developed for each component.

Of particular interest are the approaches to detection and health education. The approaches to detection used in FY'71 included:

- Multiphasic screening (which is usually more cost/effective for large projects, e.g., about 1,000 children, than for smaller projects.) Multiphasic screening is conducted by trained teams of paraprofessionals; all screening for one child is completed in one sitting.

- Mixed screening is provided by various sources, e.g., state vision-and-hearing specialists, laboratories, etc., at various times.

- Full exams are usually performed by physicians and dentists.

The approaches to health education developed in FY'71 included:

- Group setting: In this approach health education is provided in groups at the time of screening and review or as part of group meetings convened by another organization.

- At home: In some sites, health education was provided in a series of home visits.

Putting these together, a matrix of possible approaches is formed:

	Health Education		
Detection	Group	At Home	Other (specify)
Multiphasic	A	B	C
Mixed	D	E	F
Full Exam	G	H	I
Other (specify)	J	K	L

It is requested that each proposal describe the detection and health education approach enough to permit identification as to approximate "approach" combination (A, B, etc.). Since other matrices (e.g., detection by resource availability; detection by type of on-going program) could be developed, a very full description of each component and of resources available in the area to be served would be desirable.

[ATTACHMENT: EPSDT Guidelines, dated December 22, 1971]

APPENDIX B

PLAN FOR ASSESSMENT OF IMPACT OF HEALTH EDUCATION ON HEALTH START PARENTS

1. The Plan

In the summer and fall 1972, The Urban Institute staff visited 28 of the 30 Health Start projects.[1] It was expected that information collected at these projects and recorded in the Field Visit Reports--combined with the results of a telephone poll of health coordinators near the end of the program year--would permit the selection of five or six Health Start projects with health education components that were innovative and relatively inexpensive, that seemed to be working well, and that offered promise of reproducibility in summer and full-year Head Start projects.

2. Development and Research Design of Intended Parent Interview

Since one of the original aims of the evaluation was to assess the impact of health education on Health Start parents,[2] a survey based on the guideline requirements was developed to determine the effects of various health education components on a sample of parents in selected Health Start projects.[3] Illustrations of the types of research questions are:

- What did parents and children learn about health?
- Are parents aware of child health problems uncovered in screening tests? Are they aware of the ongoing treatment program to which they have been introduced?
- Are parents more aware of the services available to them as a result of Health Start?
- How was the health education knowledge put to use by parents and children?

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1. The other two projects were visited in early 1973 after they began operation.

2. See Joseph S. Wholey and Leona M. Vogt. "Evaluation of the Health Start Program," proposal for research project submitted to the Office of Child Development, The Urban Institute, and Richard B. Zamoff, "Analysis Plan for Evaluating Health education in the Health Start Program," The Urban Institute.

3. The design and execution of parent interviews in The Urban Institute's evaluation of Head Start experience with Healthy, That's Me was useful in preparing the intended data collection instrument.

Once the Health Start projects with the most promising health education components had been selected, a random sample of approximately 100 parents was to be chosen for subsequent interviews near the end of the program year (April 1973). The sampling procedure would have involved the selection of children from the Quarterly Health Reports. The parents of the sampled children would have constituted the interview sample.[1]

For a variety of reasons noted below, the parent survey was not executed as planned. It was hoped that the parent survey could be used to highlight successful health education models and strategies in Health Start that could be recommended for adoption in Office of Child Development programs or other early childhood efforts.

3. Reasons for Non-Use of Parent Survey

A number of serious methodological constraints dictated the wisdom of not expending human and financial resources on the parent survey as outlined above:

a. As has already been mentioned, The Urban Institute site visits to all of the Health Start projects and telephone interviews with all the health coordinators revealed a high degree of casual, sporadic, informal health education activities, and a relatively low incidence of planned,

1. In view of the resources available to the project, it appeared feasible to conduct interviews with a maximum of 30 parents at the five or six project sites we expected to select. Since the number of children at Health Start projects ranged from 85 to 844 children as of January 31, 1973 (median = 217 children), the interview sample would have been approximately 14 percent of the number of enrolled children. We expected to complete interviews with approximately two-thirds of the sampled parents.

organized events both for parents and children. And, even though eight projects were found to be distinctive, they emphasized different topics; therefore it would be difficult to compare results of their efforts. A comparative study of "good" and "poor" projects was virtually impossible due to the very limited range of health education activities.

b. In numberous projects, including the eight projects judged to have relatively good health education components, a number of methodological problems were discovered related to the execution of a parent survey:

(1) The focus of individual projects chiefly on one promising dimension of health education--e.g., strep infections in Center, Colorado or dental education in Region X.[1]

(2) The atypicality of the parents--e.g., college students in Cedar City, Utah.

(3) The inaccessibility of parents--e.g., migrant workers in Merced, California and The Dalles, Oregon or projects covering a large number of counties or a state (e.g., The Dalles, Oregon; Grants, New Mexico; and Mora, Minnesota).

(4) The enrollment of Health Start children in Head Start in the fall 1972 eliminating the possibility of distinguishing the effects of Health Start from Head Start.

(5) The enrollment of Health Start children in day care centers, who at the same time were in with Health Start not providing any added health education.

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1. Actually, the Health Start guidelines establish no priorities among the variety of health education activities mentioned.

c. It was assumed that Health Start parents would be used as interviewers in the study (to reduce costs and illicit more information). However, the need to obtain information on the health status of parents and children raised obvious questions about the confidentiality of the data. In addition, due to the complexity of the research interview developed, the use of Health Start parent interviewers was ruled out, as was the possibility of telephone interviews, or the use of mail questionnaires. Under other conditions, the use of these strategies could have been desirable.

d. A large proportion of potential parent respondents at almost all the Health Start sites were inaccessible for the purpose of data collection activities. Since parents were to be randomly sampled, and since any other selection procedure would have introduced obvious bias in the data, it would have required an extensive amount of time (and money) to locate parents and complete the desired number of interviews (estimated at a minimum of two man-weeks per site).[1] Project resources were unavailable for an effort of this magnitude.

e. Even where health education activities were taking place, they usually received low priority in terms of project plans. In virtually every Health Start project, health education activities were begun long after the intended starting date. While it is likely that since the reporting requirements and guidelines stress the delivery of health services, the first component to be abandoned was health education, the net result is that it is highly debatable whether positive gains that might

1. The use of The Urban Institute field interviews was eliminated because of the expected value of the data and the high cost of collecting them.

be attributable to health education activities would have been observable after very limited exposure to the health education component (e.g., three months and two encounters).

Finally, the use of an "after only" research design is quite weak for making causal inferences between exposure to a health education component and the existence of some desirable outcome (e.g., informational gains, behavioral or attitudinal changes, etc.). Positive results might be due to extraneous factors or to one's (unmeasured) position at the beginning of the program year.

Any of the above constraints would have constituted a serious methodological obstacle to the execution of an effective parent survey. Taken together, they provided the rationale for basing the health education analysis on the site visit information and on the interviews with the health coordinators.

APPENDIX C

MEDICAID SUPPORT FOR HEALTH START

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TO: [illegible]
[illegible] Regional Coordinator
for Medical Services, Region I

DATE: [illegible]

FROM: Howard H. Newman
Commissioner

SUBJECT: Follow Through on SRS Collaboration with OCD's 1972 Health Start Program (See Mr. Twiname's memo to SRS Regional Commissioners of 3/10/72, and Field Staff Information and Instruction Series, #25, to Associate Regional Commissioners for Medical Services from me, 3/23/72)

Interagency collaboration is an important ingredient in implementing early and periodic screening, diagnosis, and treatment requirements, a high priority in MSA objectives. I am, therefore, asking for your help in furthering Medicaid's collaboration with the Office of Child Development in launching the 1972 Child Health Start program.

A list of the Health Start projects in your region, and the names and phone numbers of the Health Start Coordinators assigned to these projects is enclosed (Attachment 1); also two copies of each of these Health Start projects (Attachment 2). I am asking that you:

(1) Send the title XIX agency a copy of each of the Health Start projects in his State, and share with him the information contained in Mr. Twiname's memorandum, and my Field Staff Information and Instruction Series #26 on this subject. (Attachment 3)

(2) Arrange a meeting with the regional OCD Health Start Representative, the State title XIX agency, and the local project coordinators for projects in your region to (a) discuss the role that the Medicaid program can play in implementing Health Start projects in that State, (b) establish channels of communication for the Health Start project coordinator both at the State and local level, and (c) work out realistic arrangements for implementing interagency collaboration, including appropriate reimbursement arrangements.

(3) Advise the local Health Start coordinator of the time and place of the scheduled interagency meeting in the State Title XIX agency office.

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Page 2 - Mr. Alfred Bernardi

(4) Advise me by August 25, 1972 of the results of such a [illegible] that this may be included in the monthly status report to the Secretary on OCD programs of high priority.

The Office of Innovations is planning to undertake several [illegible] on early and periodic screening, diagnosis, and treatment in the coming fiscal year. You may, therefore, wish to consider this possibility in communities where such an interagency activity with Health Start might be productive. I understand that Dr. Helen Martz has already discussed such a possibility with Marjorie Hymans on your staff, and Roy Dow from the Maine title XIX agency who attended the Regional OCD orientation session in New York on June 21 and 22. A preliminary review of the Health Start project in Bangor, Maine, gives indication of a good potential for interagency collaboration. Technical assistance in the development of such a project will be available on request.

I know that I can count on your cooperation in this interagency effort to implement the program for early and periodic screening, diagnosis, and treatment. Questions about this activity can be directed to Mrs. Martz, (2-3164).

/s/ Howard N. Newman

Howard N. Newman
Commissioner

3 Attachments

Prepared by Helen Martz, Office of Innovations

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REGION I
HEALTH START PROJECTS AND HEALTH
START COORDINATORS BY STATE

MAINE

Mr. Kenneth D. Cole
Division of Child Development
Penquis CAP
611 Hammond Street
Bangor, Maine 04401
tele. # (207) 945-6495

RHODE ISLAND

Mr. Norman W. McComb
Head Start Director
Blackstone Valley
150 Maine Street
Pawtucket, Rhode Island 02860
tele. # (401) 723-4520

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MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
SOCIAL AND REHABILITATION SERVICE
Office of the Administrator

TO : All SRS Regional Commissioners

DATE: MAR 10 1972

RECEIVED
MAR 17 1972
OCD/DHEW

FROM : Administrator
Social and Rehabilitation Service

SUBJECT: SRS Collaboration with the 1972 Summer Health Start Program

The Office of Child Development, Office of the Secretary, has especially requested our collaboration in implementing their 1972 Summer Health Start Program. Joint planning has been undertaken at the national level toward a coordination of resources of other HEW programs to make medical and dental services available to low income preschool children included under the Health Start Program.

A similar joint undertaking at the regional level is essential if their program goal, "...to develop new techniques in the coordination of resources" is to be effected. On page 6 of the attached guidelines for Health Start 1972 the regional role of the Office of Child Development includes the establishment of a regional Health Start Committee composed of collaborating agencies, including SRS, to assist in proposing possible sites, soliciting proposals, recommending which proposals should be funded, etc.

A copy of SRS's program regulation guide on "Early and Periodic Screening, Diagnosis, and Treatment of Individuals Under Age 21," to be administered under the Medicaid program, was attached to the Health Start Guidelines sent to OCD Assistant Regional Directors on February 29, 1972. A listing of Associate Regional Commissioners for Medical Services was also sent to them.

We urge your full cooperation in assigning MSA and other appropriate staff to serve on the OCD regional interagency committee, and to request their active involvement in selection of Health Start sites as well as in follow-through with State Medicaid agencies to assure their participation in the provision of needed medical and dental services to Health Start children eligible under the State's Title XIX program.

A joint statement on Coordination Between Title XIX and the OCD Health Start Program, signed by both Howard Newman, Commissioner, Medical Services Administration and Edward Zigler, Director, Office of Child Development, was sent to HEW Regional Offices and to the State agencies administering medical and public assistance programs on April 5, 1971. The attached copy of Appendix B, Medicaid Support for Health Start, included in the report prepared on Health Start 1971, indicates that little, if any, assistance was provided Health Start programs.

Page 2 - All SRS Regional Commissioners

With new requirements for early, screening, diagnosis and treatment under the Medicaid program, and with a more concerted and coordinated effort by Regional staff, it is hoped the report for Health Start 1972 will provide a more encouraging example of the strength of an integrated services approach, a high priority of both the Secretary and myself.

OCD Guidelines and a list of their Regional staff is attached for your use.

John D. Twiname
Administrator

Enclosures

cc: Dr. Merlin DuVal
Dr. Edward Zigler
Regional Directors
Mrs. Patricia Hitt
Mr. William Page

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
GOVERNMENT CENTER
BOSTON, MASSACHUSETTS 02203

OFFICE OF CHILD DEVELOPMENT

REGIONAL HEALTH START PROGRAM - SUMMER 1972

The Office of Child Development, Region I, announces its Regional Health Start Program - Summer 1972.

Enclosed is the grant application kit, including guidelines, and the HSMHA pre-application form for the Family Health Center Grant Program. This pre-application form will be used to assess the applicant's ability to develop the kind of health program required in the Guidelines for Health Start.

It is required that all project proposals be submitted on the forms supplied and in the manner prescribed by the Office of Child Development. Informal inquiries regarding the program and indications of intent to seek a grant should also be sent to this Office.

The overriding criteria for agencies wishing to submit a proposal for a Health Start Program in Region I will be the ability of that agency to serve children from populations least reached in the Region with particular emphasis on minority, poor rural and migrant worker populations.

As stated in the Guidelines, eligibility will be based on the OEO poverty guidelines or the State Medicaid requirements, whichever is higher. Grantees planning to run a summer Head Start program during 1972 and willing to convert funds for use in a Health Start program are encouraged to do so.

Applicants who desire assistance should notify the Regional Office immediately. Arrangements could be made for a workshop session at the John F. Kennedy Federal Building, Room 2000, Boston, on April 14, 1972, at 10:00 a.m. The purpose of the meeting would be to interpret the guidelines, provide technical assistance in filling out the forms, and to provide information related to program objectives and required project components and permissible variations.

All grant applications are to be sent to the Assistant Regional Director, Office of Child Development, Region I, John F. Kennedy Federal Building, Room 2000, Government Center, Massachusetts 02203. The deadline for receipt of applications is April 27, 1972.

Rheable M. Edwards

(Mrs.) Rheable M. Edwards
Assistant Regional Director
Office of Child Development

April 4, 1972

Enclosures: (1) Grant Application Kit
(2) Pre-Application Form

APPENDIX D

MISCELLANEOUS HEALTH START DATA

TABLE D-1

PROFILES OF HEALTH COORDINATORS
JUNE 1973

REGION		BACK-GROUND/ EXPERI-ENCE	TENURE				% TIME- HEALTH START		
			Coordinator also in 1971 Program	Hired Spring/ Summer 1972	Original Coord.- Hired After 8/1/72	Turnover	Full Time	Part-Time	Shared With
I	Pawtucket, R.I.	PNP**			X			End of Grant March?	Also Dir. of Hlth Center
	Penobscot, Me. *	PHN***	X					½ Time 12 Mos.	Head Start
II	Toms River, N.J. *	RN	X				X		
	Albion, N.Y. *	PHN		X			X		
	San Juan, P.R. (Summer)*	RN	X				X		
	(Full Year)			Same as for Summer					
III	Baltimore, Md.*	Other	X				X		
	Fairmont, W.Va. (Marion)*	PHN		X			X		
	(Barbour)*	Other	X				X		
IV	Boone, N.C.*	Other				One Change		50% 12 Mos.	
	Orlando, Fla.*	RN	X				X		
	Charleston, S.C.*	PHN				One Change		3/4 Time 12 Mos.	
	West Palm Beach, Fla.				X			40% 12 Mos.	4-C
V	Flint, Mich.*	PHN	X				X		
	Mora, Minn. *	Other Health	X						
	Dayton, Ohio*	RN	X					75%	Head Start
VI	Albuquerque, N.M.	PHN		X			X		
	Oklahoma City, Okla.	Other Health				One Change	X		
	Grants, N.M.	Other			X			50% 12 Mos.,	Head Start
	Galveston, Tex.	RN		X			43 Weeks	50% 9 Wks.	Head Start
	Hammond, La.*	RN	X				X		
VII	Portageville, Mo. *	RN	X						Head Start
	Carroll, Iowa	RN		X			X		
VIII	Center, Colo. *	RN	X				X		
	Cedar City, Utah *	PHN	X				X		
IX	Merced, Calif.	RN		X			X		
X	Hillsboro, Ore.*	PHN	X				X		
	Medford, Ore.*	RN		X			X		
	Coos Bay, Ore. *	RN		X				15% 12 Mos.	Head Start
IMPD	The Dalles, Ore. *	Other	X				X		
	Amarillo, Tex.	RN				Two Changes		5%	Health Dept.
	Ft. Lauderdale, Fla.	Other				Two Changes		5%	CAP

* Refunded Projects
** Pediatric Nurse Practitioner
*** RN with Public Health Experience

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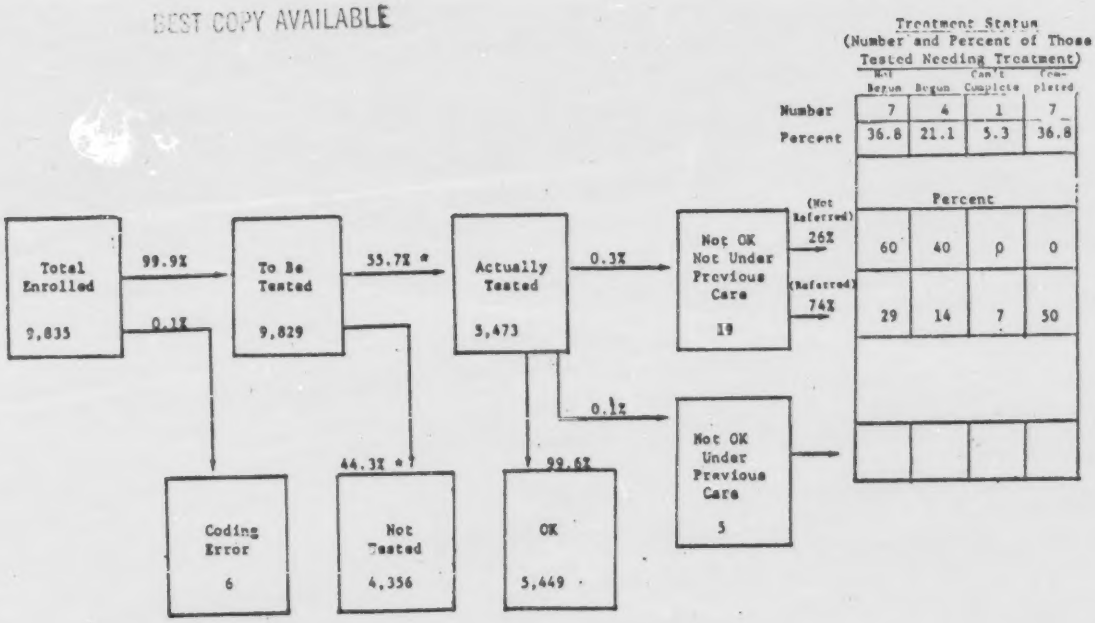
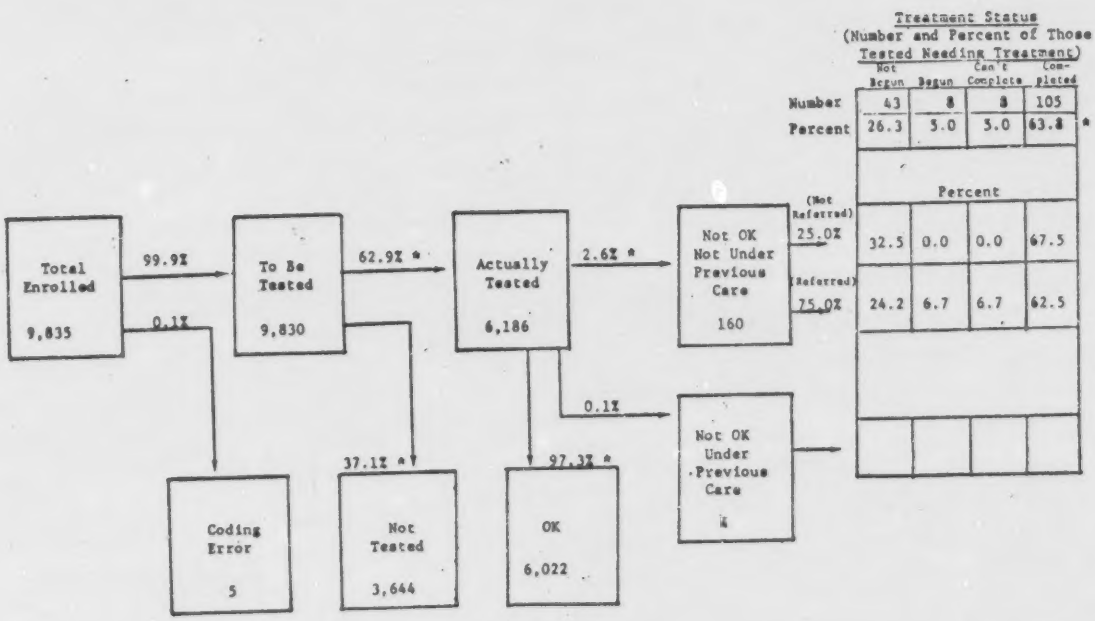


* Significant variation across projects ($p < .0001$).

FIGURE D-1: TUBERCULIN SCREENING AND TREATMENT



* Significant variation across projects ($p < .0001$).

FIGURE D-2: URINALYSIS SCREENING AND TREATMENT

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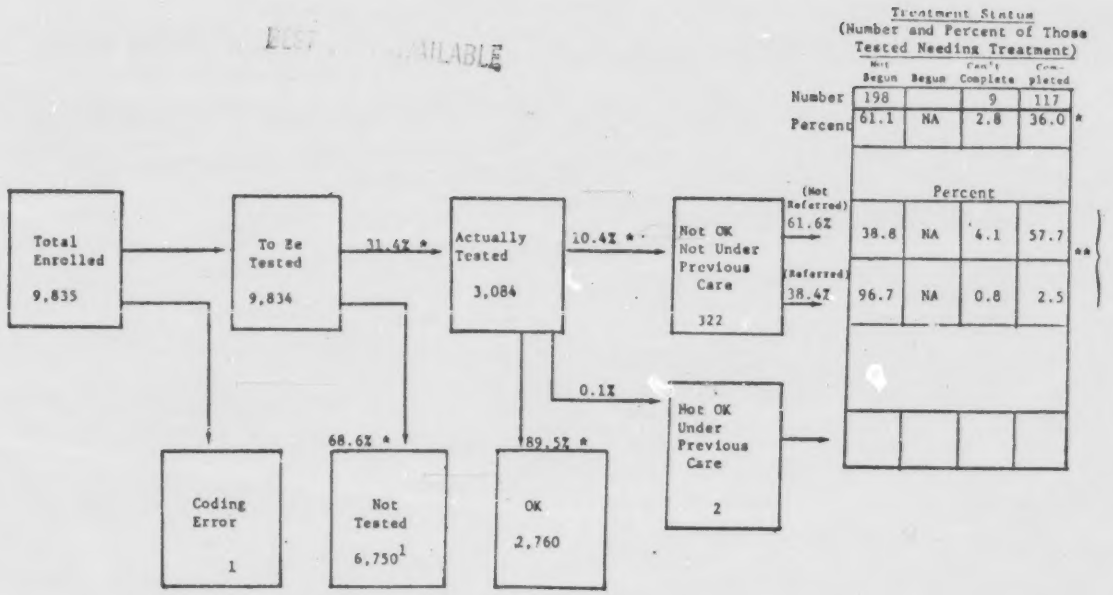
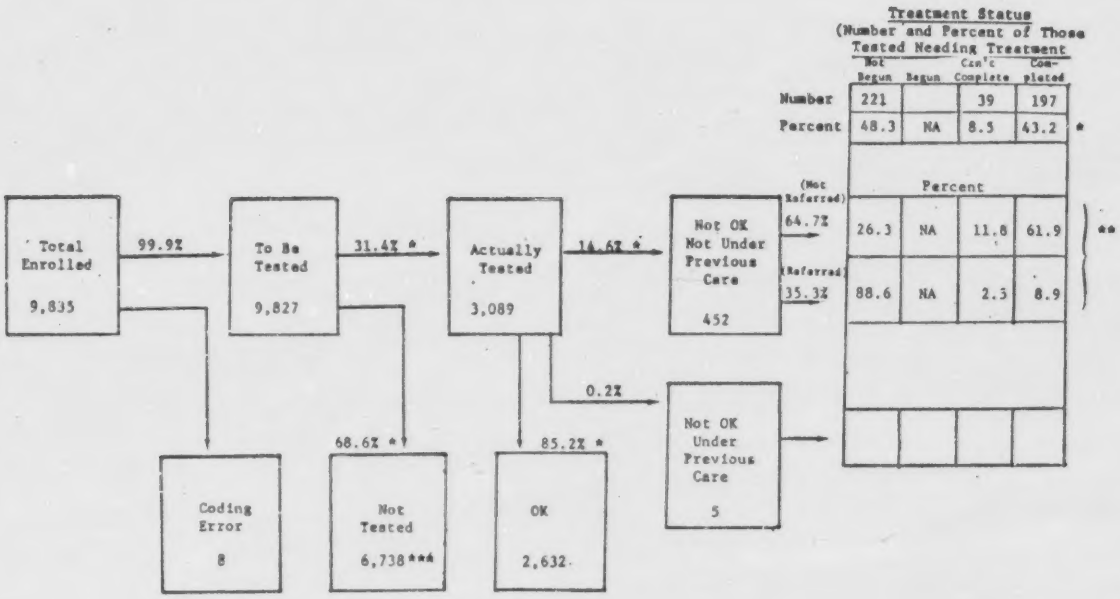


* Significant variation across projects ($\alpha < .0001$).
** Percentages significantly different ($\alpha < .0001$).
1 Includes 1,071 children with hemoglobin readings reported but lacking any indication of being OK or needing treatment.

FIGURE D-3: HEMOGLOBIN SCREENING AND TREATMENT



* Significant variation across projects ($\alpha < .0001$).
** Percentages significantly different ($\alpha < .0001$).
*** Includes 1,178 children with hematocrit readings reported but lacking any indication of being OK or needing treatment.

FIGURE D-4: HEMATOCRIT SCREENING AND TREATMENT

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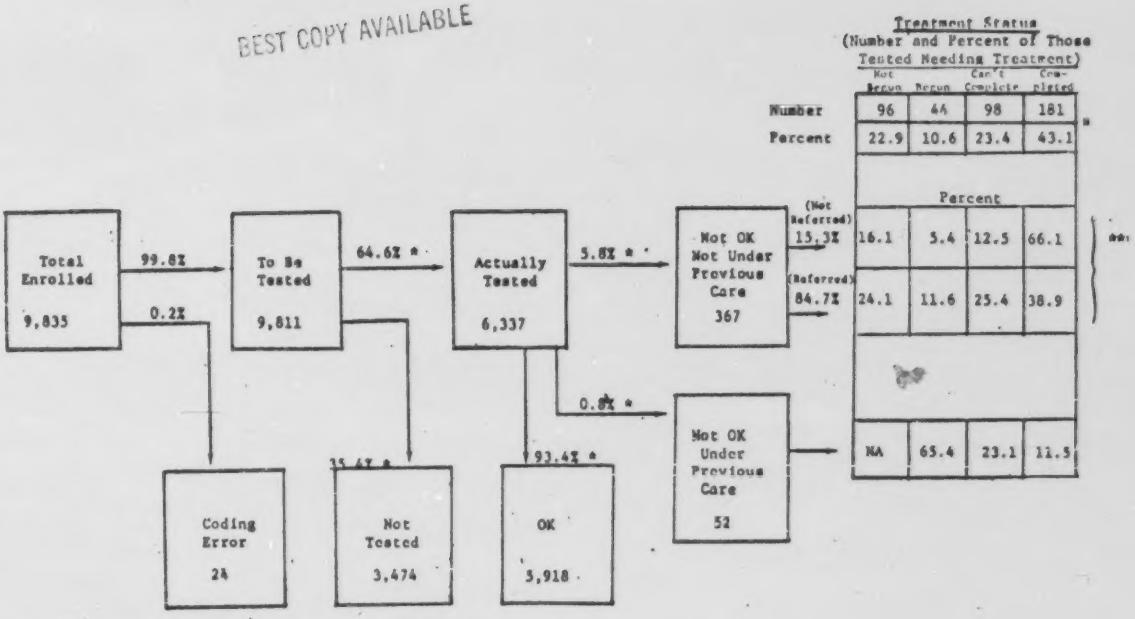
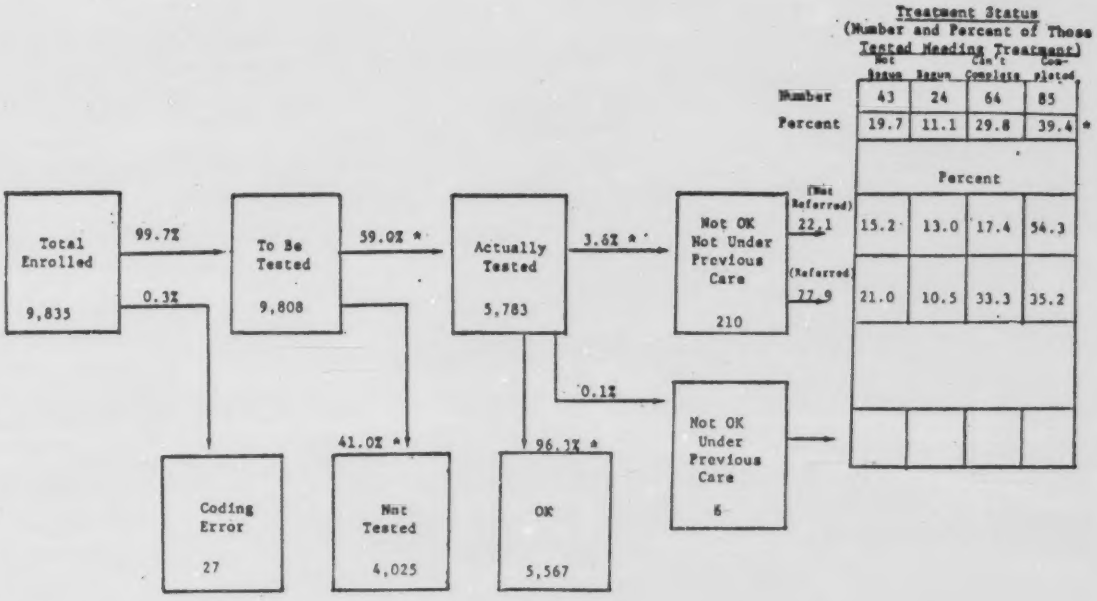


* Significant variation across projects ($p < .0001$).
** Significant variation across projects ($p = .0026$).
*** Percentages significantly different ($p = .0022$).

FIGURE D-5: VISION SCREENING AND TREATMENT



* Significant variation across projects ($p < .0001$).

FIGURE D-6: HEARING SCREENING AND TREATMENT

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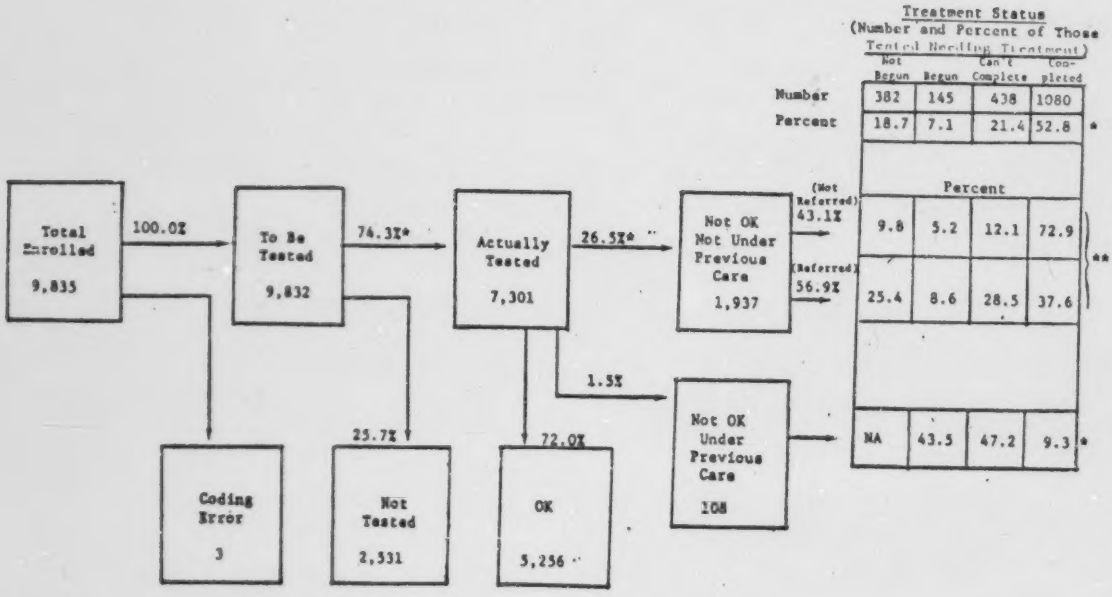
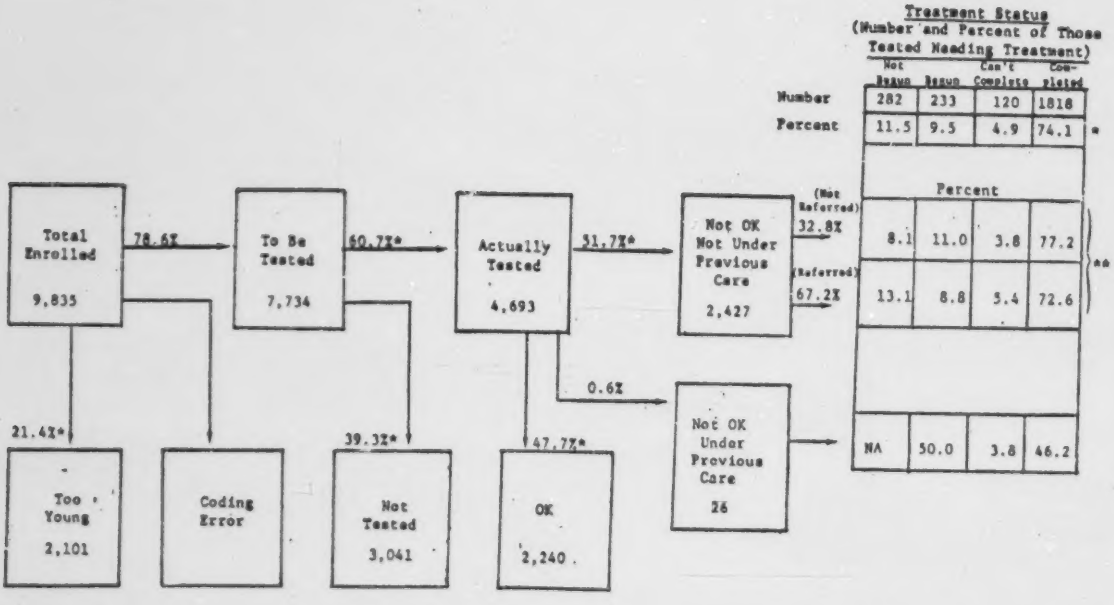


* Significant variation across projects ($\alpha < .0001$).
** Percentages significantly different ($\alpha < .0001$).

FIGURE D-7: MEDICAL SCREENING AND TREATMENT



* Significant variation across projects ($\alpha < .0001$).
** Percentages significantly different ($\alpha = .0003$).

FIGURE D-8: DENTAL SCREENING AND TREATMENT

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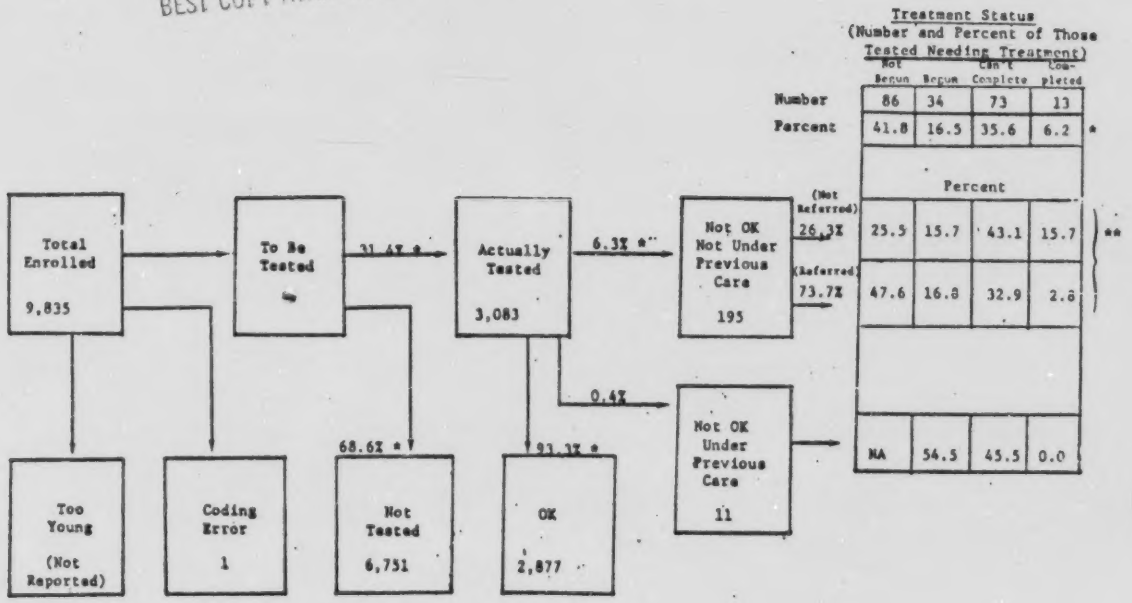
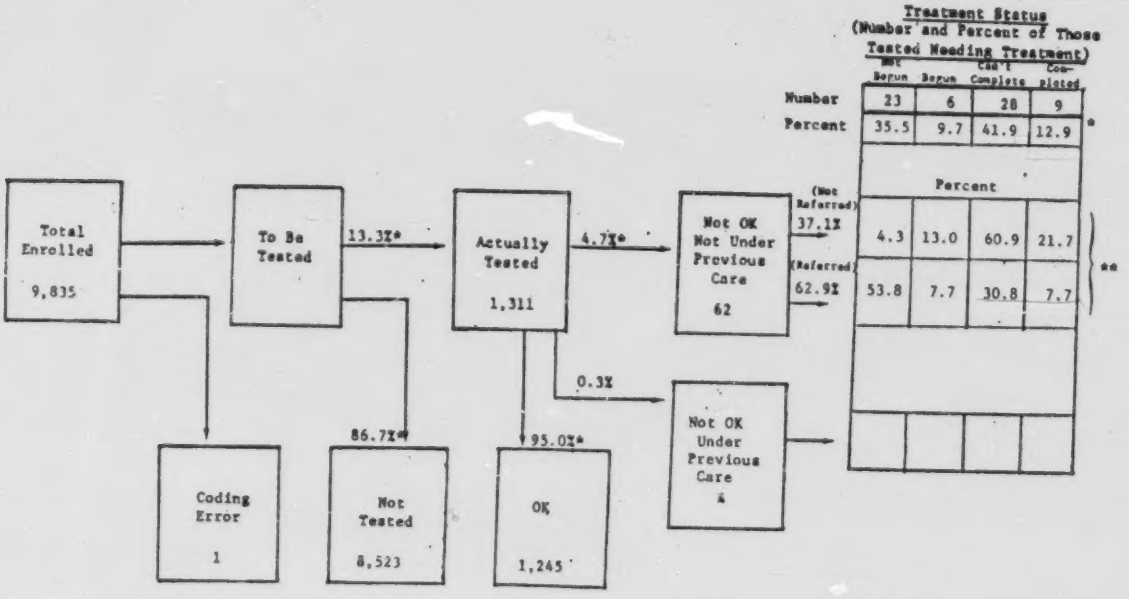


* Significant variation across projects ($\chi^2 < .0001$).
** Percentages significantly different ($\chi^2 = .0014$).

FIGURE D-9: SPEECH SCREENING AND TREATMENT
(Optional)



* Significant variation across projects ($\chi^2 < .0001$)
** Percentages significantly different ($\chi^2 = .0013$).

FIGURE D-10: DENVER DEVELOPMENT SCREENING AND TREATMENT
(Optional)

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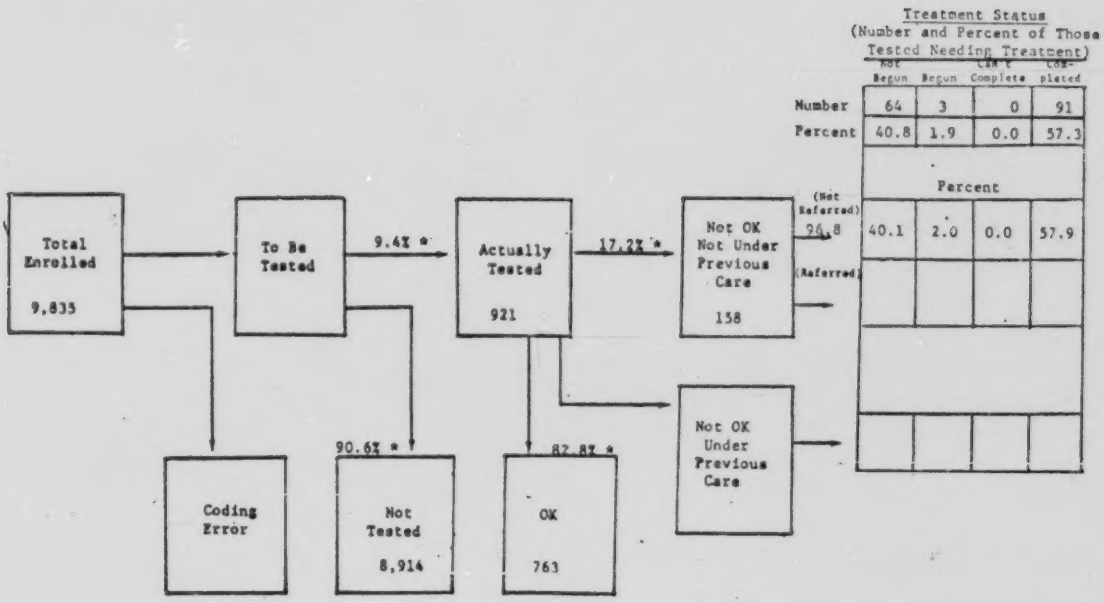
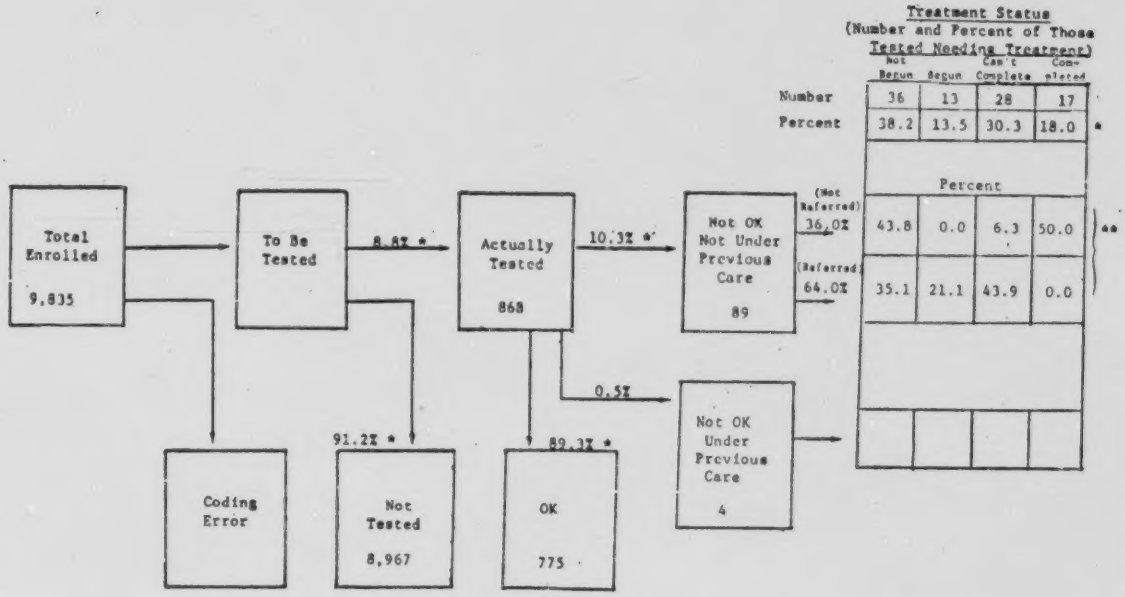


* Significant variation across projects ($p < .0001$).

FIGURE D-11: INTESTINAL PARASITES SCREENING AND TREATMENT (Optional)



* Significant variation across projects ($p < .0001$).
** Percentages significantly different ($p < .0001$).

FIGURE D-12: PSYCHOLOGICAL SCREENING AND TREATMENT (Optional)

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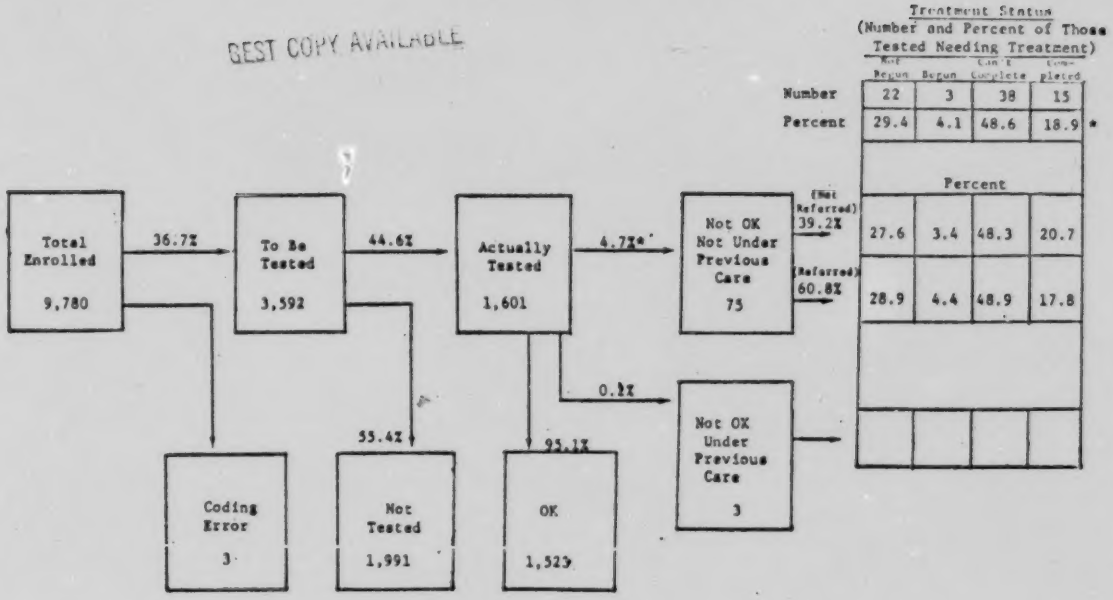
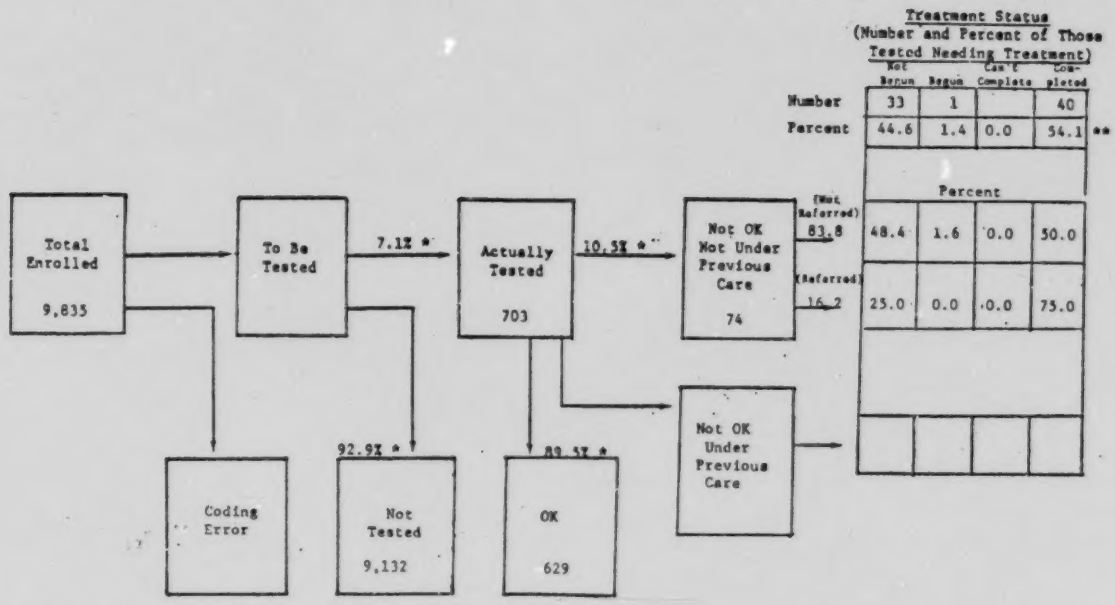


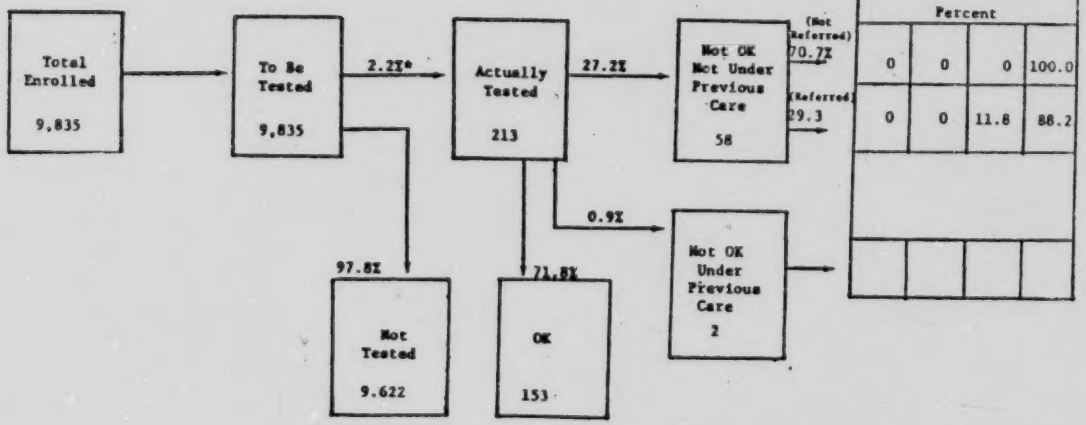
* Significant variation across projects ($p < .0001$).

FIGURE D-13: SICKLE CELL SCREENING AND TREATMENT
(Optional)



* Significant variation across projects ($p < .0001$).
**Significant variation across projects ($p = .0007$).

FIGURE D-14: LEAD POISONING SCREENING AND TREATMENT
(Optional)



Treatment Status
(Number and Percent of Those Tested Needing Treatment)

	Not Begun	Begun	Can't Complete	Completed
Number			2	58
Percent	0	.0	3.4	96.6
	Percent			
(Not Referred) 70.7%	0	0	0	100.0
(Referred) 29.3	0	0	11.8	88.2

* Significant variation across projects ($p < .0001$).

FIGURE D-15: STREP CULTURE SCREENING AND TREATMENT (Optional)

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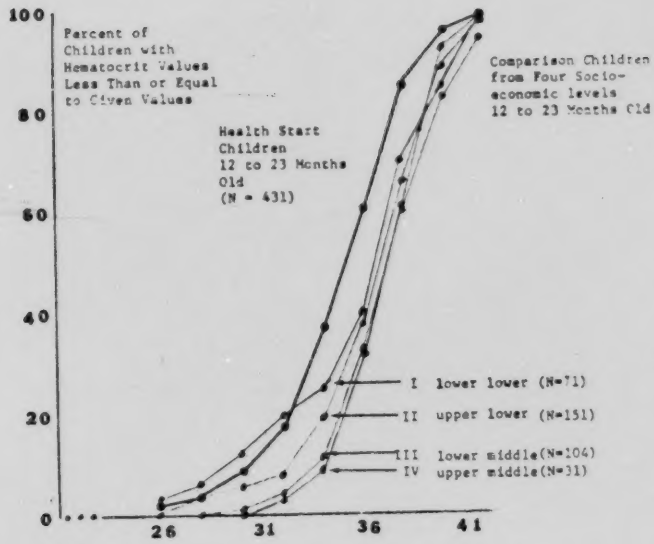

FIGURE D-16: A Comparison of Health Start Children Age 12 to 23 Months with Another Nationwide Survey of Hematocrit Values

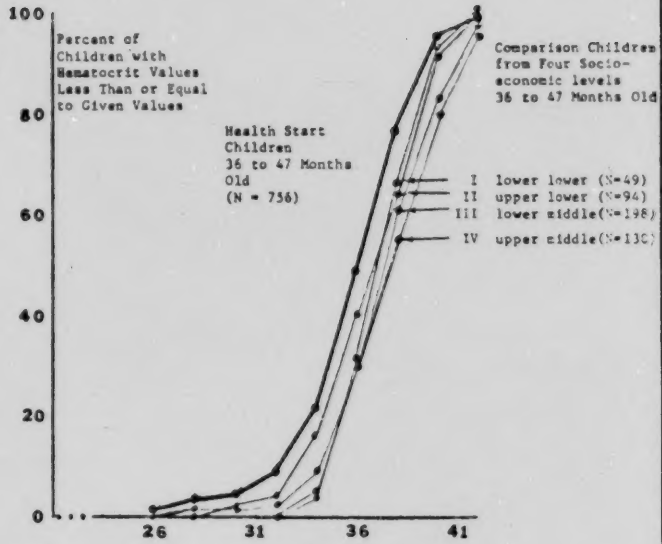

FIGURE D-18: A Comparison of Health Start Children Age 36 to 47 Months with Another Nationwide Survey of Hematocrit Values

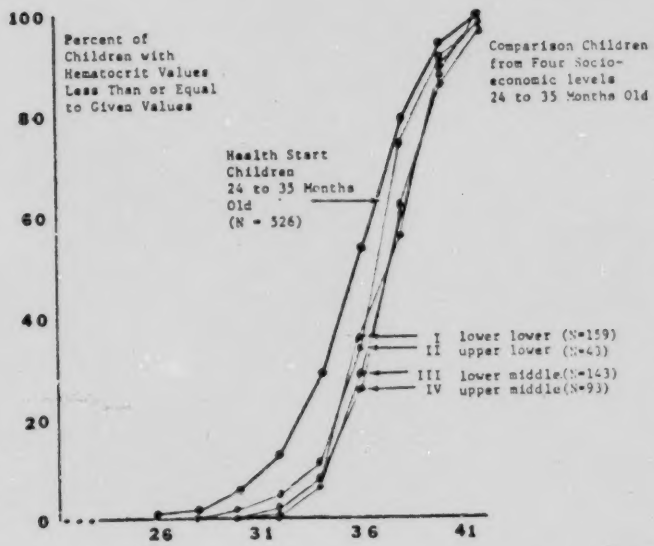

FIGURE D-17: A Comparison of Health Start Children Age 24 to 35 Months with Another Nationwide Survey of Hematocrit Values

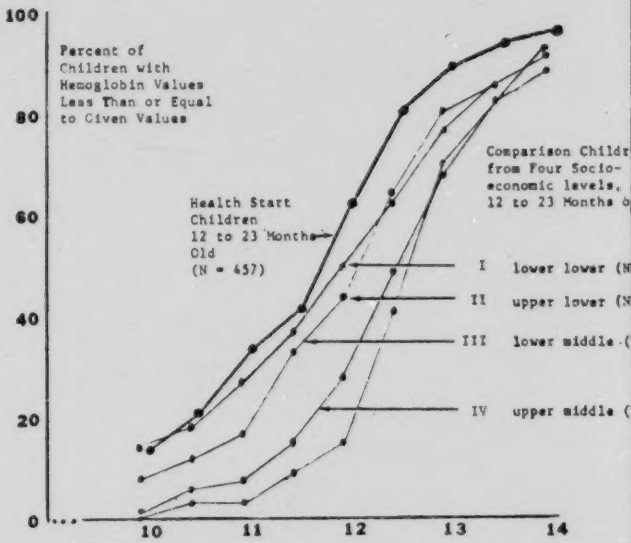

FIGURE D-19: A comparison of Health Start Children age 12 to 23 Months with Another Nationwide Survey of Hemoglobin Values

BEST COPY AVAILABLE

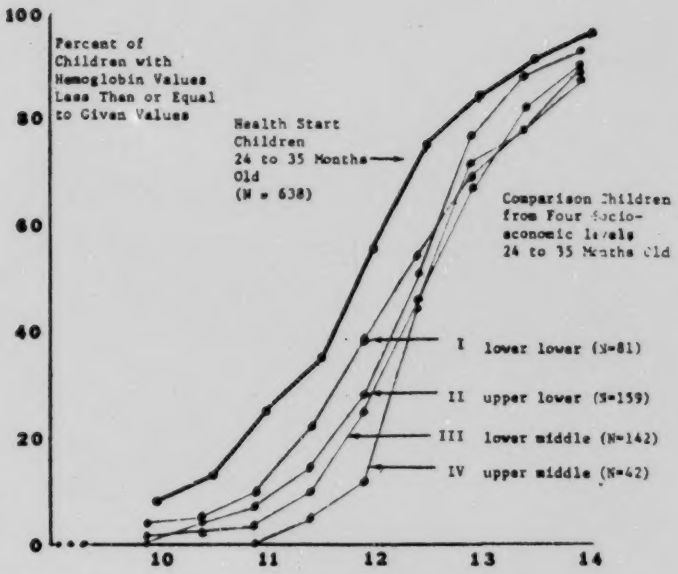

FIGURE D-20: A Comparison of Health Start Children Age 24 to 35 Months with Another Nationwide Survey of Hemoglobin Values

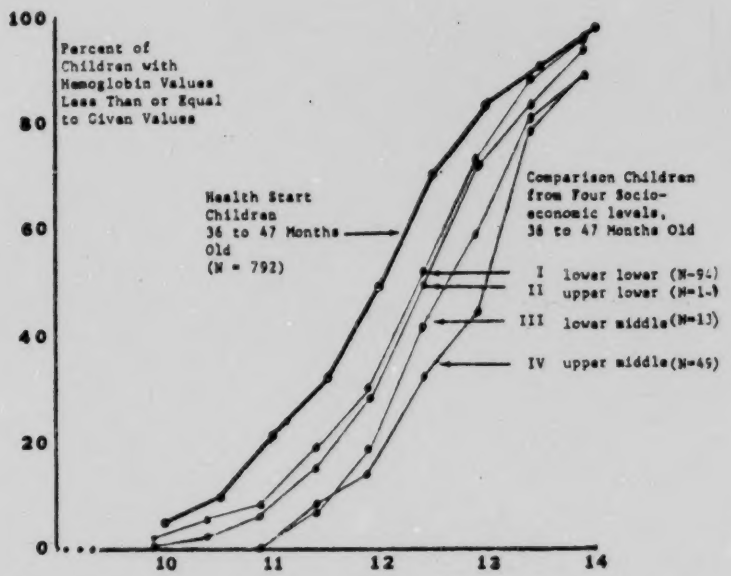

FIGURE D-21: A Comparison of Health Start Children Age 36 to 47 Months with Another Nationwide Survey of Hemoglobin Values

TABLE D-2: PERCENT OF ELIGIBLE CHILDREN TESTED

ELIGIBLE CHILDREN = ENROLLED LESS CODING ERRORS AND CHILDREN TOO YOUNG

TEST	Required								Optional							
	Hemoglobin	Hematocrit	Tuberculosis	Urinalysis	Vision	Hearing	Dental	Medical	Speech	G6PD	Intestinal Parasite	Lead Poisoning	Psychological	Sickle Cell	Strep Culture	Denver Development
1.	0	0	83.4	76.0	75.3	35.7	71.8	82.8	7.1	0	0	84.1	0	0	0	0
2.	76.6	0	0	40.8	41.5	44.7	77.3	76.0	39.3	0	0.2	39.0	0	0	0	0
3.	45.8	71.7	78.2	64.8	89.7	87.6	58.1	79.9	0	0	0	0	0	16.0	0	0
4.	75.0	76.5	56.0	74.0	10.0	13.0	6.0	50.0	0	0	7.0	0	0	6.0	0	79.0
5.	77.0	77.0	96.6	73.3	46.0	0	100.0	49.4	0	0	64.4	75.9	1.1	71.3	1.1	0
6.	85.5	85.5	81.8	63.6	4.5	0	56.9	3.6	16.4	0	37.3	0	0	21.8	0	0
7.	0	76.6	4.3	47.2	32.8	17.4	47.5	22.0	0	0	0	0	0	74.2	0	0
8.	92.7	92.7	2.8	93.6	93.6	93.6	93.6	91.7	3.7	0	1.8	93.6	0	15.6	0	0
9.	83.0	81.8	0	83.0	84.1	83.0	60.2	3.6	0	0	34.1	0	0	4.5	0	0
10.	4.1	92.5	16.7	73.3	17.6	13.8	98.8	99.7	5.0	0	9.7	0	0	0	0	76.7
11.	0	76.5	93.9	97.8	90.5	41.3	86.9	98.3	49.7	0	0	0	0	0	0	0
12.	63.8	68.8	72.0	0.3	90.1	90.5	9.0	87.2	90.1	0	0	3.9	0	4.3	0	72.7
13.	30.1	0	78.6	73.5	77.0	76.0	30.6	82.7	0	0	0	0	34.2	76.0	0	0
14.	0	90.1	69.1	76.0	63.3	65.5	80.3	89.8	66.6	0	0	0	0	57.5	0.3	65.5
15.	52.0	6.0	31.8	50.7	52.3	51.3	41.0	58.9	46.1	0	0	0	0.3	0	0.3	0
16.	0	0	95.1	71.4	54.6	55.1	100.0	99.5	0.5	0	0	0	0	0	0	0
17.	0	55.0	0	32.7	64.0	76.9	66.8	58.6	75.7	0	0	0	0	0	0	61.6
18.	95.3	0.1	94.3	91.6	98.6	95.6	99.7	96.7	93.1	0	0	1.9	93.8	61.5	0.1	0
19.	37.4	39.0	39.4	80.0	81.6	81.0	70.6	76.1	74.2	0	0	0	0	0	0	0
20.	0	0	52.0	60.2	35.7	31.6	95.3	62.2	1.0	0	4.1	0	0	0	0	0
21.	0.2	0.8	85.1	89.3	82.1	85.7	26.7	81.1	2.1	0.1	86.6	0.1	0	0	0	0
22.	44.7	56.5	100.0	100.0	100.0	100.0	98.8	96.6	0.4	0	0	0	0	64.5	0	0
23.	36.1	34.0	35.1	32.2	50.7	23.0	33.0	49.3	0.8	0	0	0	0	0	0	11.1
24.	2.1	93.6	82.1	96.4	94.3	94.3	87.5	93.6	92.1	0	0	0	86.4	0	92.1	3.6
25.	21.1	39.9	55.4	59.2	47.9	18.8	62.0	67.6	22.1	0	0	0	0	0	0	67.6
26.	57.9	0	89.6	75.5	86.2	87.2	95.1	95.7	62.7	0	0	0	0	0.9	0	0
27.	0	78.6	71.8	64.8	88.9	88.0	92.0	79.6	74.9	0	0	0	0	0	36.1	0
28.	25.1	25.7	58.1	49.2	70.4	68.2	80.4	65.4	25.1	0	0.6	0	0	0	0	67.0
29.	0	0	16.8	66.4	52.9	52.9	57.0	67.2	0	0	0.8	0	0	0	0	0
30.	7.3	37.0	25.7	30.4	35.8	35.2	43.3	68.2	8.8	0	0	0	0	0	0	1.6
31.	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
32.	16.4	1.0	61.1	56.1	56.3	39.4	22.3	35.7	3.5	0	0.6	0	0	31.1	0.2	0

PROJECT ID NUMBER

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TABLE D-3: PERCENT (AND NUMBER) OF TESTED NOT OK AND NOT UNDER PREVIOUS CARE

TEST	Required										Optional							
	Anemia %	Anemia Actual Number	Hematocrit %	Hematocrit Actual Number	Tuberculosis	Urinalysis	Vision	Hearing	Dental	Medical	Speech	G6PD	Intestinal Parasite	Lead Poisoning	Psychological	Sickle Cell	Strep Culture	Denver Development
1.					1.2	1.7	9.9	10.0	20.5	0.4	45.5			23.2				
2.	4.5	22				2.7	9.4	3.5	96.5	23.1	3.2		0	5.6				
3.	14.3	11	13.4	16	0	14.0	6.9	0	44.0	14.8						7.4		
4.	10.7	8	2.7	2	0	0	30.0	38.5	0	52.0			0			16.1		8.9
5.	56.7	38	55.2	37	1.2	0	2.5		82.9	95.3			35.7	0		0	0	
6.	27.7	26	28.7	27	1.1	5.7			59.7	100.0	5.6		17.1			8.3		
7.			0.9	2	0	2.8	1.0	0	7.7	4.1			0			0.5		
8.	1.0	1	1.0	1	0	2.0	4.9	0	29.4	36.0	50.0		100.0	0	0	17.6		
9.	9.6	7	9.7	7		2.7	1.4	0	35.8	0			3.3			0		
10.	23.1	3	19.0	56	1.9	0.9	26.8	4.5	52.7	52.1	100.0		96.8					7.0
11.			12.4	17	0	0	8.0	1.4	77.1	8.0	21.3							
12.	24.2	47	22.5	47	0	0	1.1	1.5	100.0	22.3	0.7			0		0		0
13.	0	0			0	2.8	2.0	0	56.7	30.9					23.9	6.0		
14.			15.0	49	0	18.2	10.0	3.0	60.7	21.2	1.7					8.7	0	8.9
15.	0.6		0		0	0.6	3.8	0	48.8	8.9	0				0		0	
16.					0	0	1.0	0	95.8	47.8	100.0							
17.			4.4	8		0.9	4.2	3.5	50.3	31.8	11.5							2.0
18.	4.8	33	0		0	0.8	5.3	6.5	15.9	26.6	8.9			0	8.4	5.9	0	
19.	8.6	10	5.8	7	0	1.6	5.5	2.0	51.6	10.2	1.3							
20.					0	8.5	11.4	19.4	8.2	24.6	100.0		0					
21.	50.0	18	5.7	6	0.1	2.0	8.4	3.7	99.1	39.9	22.2	100.0	12.9	0				
22.	32.5	38	19.6	29	0	1.1	0.8	0	40.2	9.5	100.0					7.1		
23.	19.0	26	20.9	27	0	3.3	3.6	3.4	28.7	38.5	33.3							2.4
24.	0		42.0	55	0	0	6.8	0.8	100.0	61.1	0				13.2		31.0	100.0
25.	2.2	1	8.2	7	0	0	1.0	5.0	59.6	41.0	6.4							0.7
26.	0.9	3			0.4	0.2	4.0	4.6	61.7	29.8	5.2						0	
27.			14.2	24	1.3	11.4	16.1	8.4	57.5	42.4	3.1						23.1	
28.	11.1	5	4.3	2	0	3.4	4.8	14.8	44.2	35.0	8.9		100.0					5.0
29.					0	3.8	1.6	1.6	34.4	21.3			100.0					
30.	46.0	29	7.8	25	0.9	1.1	7.1	4.6	59.3	20.4	2.6							
31.	----		----		----	----	----	----	----	----	----	----	----	----	----	----	----	----
32.			12.1	1	1.2	0.4	2.6	0	32.4	4.5	0		0			0.4	0	0

PROJECT ID NUMBER

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TABLE D-4: CARIES REPAIRED FOR CHILDREN RECEIVING DENTAL TREATMENT BY AGE AND PROJECT

AGE	0-36 MONTHS		37-48 MONTHS			49-60 MONTHS			61-72 MONTHS			73-125 MONTHS		TOTAL		
PROJECT ID NUMBER	Number of Children	Mean	Number of Children	Mean	Standard Deviation	Number of Children	Mean	Standard Deviation	Number of Children	Mean	Standard Deviation	Number of Children	Mean	Number of Children	Mean	Standard Deviation
1.	4	.250	7	.7	.8	20	2.0	2.1	12	1.5	2.8			43	1.5	2.1
2.	12	0	69	.1	.3	92	.3	1.0	71	.7	1.6	28	.393	272	.3	1.1
3.	2	2.000	3	.3	.6	11	4.0	4.0	3	7.3	5.1	1	18.000	20	4.5	5.1
4.																
5.			7	2.1	2.4	9	2.2	2.7	10	2.7	3.4	27	4.555	53	3.5	2.8
6.	3	.333	1			12	1.7	2.1	14	.4	1.3			30	.9	1.7
7.												1	2.000	1	2.0	
8.	3	.333	10	1.9	2.0	8	3.8	2.6	6	5.3	3.8			27	3.0	3.0
9.	4	2.750	2	3.5	.7	9	2.3	1.3	2	1.5	2.1			17	2.5	1.3
10.	1	0	10	2.4	3.1	19	.5	1.1	12	.8	1.1			42	1.0	1.9
11.	8	2.500	18	2.9	2.5	32	3.0	3.7	40	2.6	2.8	20	1.450	118	2.6	3.1
12.			5	0	0	13	.2	.6	3	0	0			21	.1	.4
13.			2	3.5	3.5	14	3.9	2.1	17	4.4	3.1			33	4.1	2.7
14.	1	0	20	3.8	4.5	53	7.1	4.7	56	7.9	7.3	2	9.000	132	6.9	6.0
15.	4	2.000	4	8.5	8.3	5	4.6	5.3	4	11.8	7.0	3	3.667	20	6.2	6.3
16.	4	3.000	28	3.3	2.3	24	4.6	3.0	21	3.7	2.6	2	6.000	79	3.7	2.6
17.	11	2.000	19	3.2	3.4	25	4.0	3.3	22	2.7	3.2			77	3.1	3.2
18.	18	.888	21	1.3	2.3	25	1.0	1.9	18	1.4	2.0	4	.500	86	1.1	1.9
19.	12	1.751	33	1.7	2.2	36	2.8	2.9	25	2.1	2.4	2	0	108	2.1	2.5
20.																
21.			9	1.1	2.1	50	2.5	3.3	71	3.3	3.9	38	3.211	168	2.9	3.7
22.	1	1.000	8	3.6	1.5	89	4.7	3.1	3	2.7	2.5			101	4.5	3.0
23.	2	2.000	7	3.7	3.7	8	1.8	1.4	7	2.6	2.4			24	2.6	2.6
24.	4	14.000	17	5.6	3.9	19	3.5	3.7	13	3.3	4.0	9	4.444	62	4.9	5.7
25.	13	6.000	2	21.0	8.5	8	16.4	6.5	5	11.8	6.1			28	11.1	7.5
26.	7	7.429	57	5.8	4.0	162	7.0	4.5	41	5.3	3.5	5	6.000	272	6.5	4.4
27.	9	5.181	17	4.3	3.2	25	4.4	3.5	20	3.1	2.7	19	3.789	90	3.9	3.2
28.	6	3.167	15	3.9	3.0	10	5.7	3.4	5	2.8	4.1	1	0	37	4.0	3.3
29.	2	6.500	7	9.1	6.4	6	9.8	8.2	6	9.0	10.4			21	9.0	7.5
30.	15	2.800	34	2.1	2.8	40	4.0	4.5	38	3.0	2.9	20	3.700	147	3.1	3.6
31.																
32.	1	0												1		
												ALL PROJECTS		2,130	3.5	4.3

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TABLE D-5 EXTRACTIONS FOR CHILDREN RECEIVING DENTAL TREATMENT BY AGE AND PROJECT

PROJECT ID NUMBER	0-36 MONTHS		37-48 MONTHS			49-60 MONTHS			61-72 MONTHS			73-125 MONTHS		TOTAL		
	Number of Children	Mean	Number of Children	Mean	Standard Deviation	Number of Children	Mean	Standard Deviation	Number of Children	Mean	Standard Deviation	Number of Children	Mean	Number of Children	Mean	Standard Deviation
1.	4	0	7	.429	.787	20	.45	1.05	12	0	0			43	.279	.797
2.	12	0	69	0	0	92	0	0	71	.197	.821	28	.179	272	.07	.492
3.	2	0	3	0	0	11	.91	.302	3	1.33	2.309	1	0	20	.25	.91
4.																
5.			7	0	0	9	.111	.333	10	.2	.422	27	.445	53	.283	.533
6.	3	0	1	0	----	12	.167	.577	14	0	0			30	.067	.365
7.												1	0	1		
8.	3	0	10	.100	.316	8	1.75	4.95	6	.333	.816			27	.63	2.705
9.	4	0	2	0	0	9	0	0	2	0	0			17		
10.	1	0	10	0	0	19	.263	.933	12	1.083	2.466			42	.429	1.484
11.	8	0	18	.278	.958	32	.125	.421	40	.150	.427	20	.250	118	.169	.559
12.			5	0	0	13	0	0	3	0	0			21		
13.			2	0	0	14	.357	.929	17	.235	.562			13	.273	.719
14.	1	6.0	2	0	0	53	.283	.948	56	.214	.594	2	0	132	.25	.877
15.	4	1.5	4	.50	1.0	5	.20	.447	4	0		3	2.667	20	.85	2.183
16.	4	0	28	.179	.476	24	.375	.924	21	.429	.746	2	0	79	.291	.701
17.	11	.091	19	0	0	25	.04	.20	22	.273	.631			77	.104	.383
18.	18	0	21	.143	.655	25	.08	.277	18	.333	.686	4	0	86	.128	.480
19.	12	0	33	0	0	36	.139	.833	25	0	0	2	0	108	.046	.481
20.																
21.			9	.778	1.394	50	1.280	2.011	71	1.606	2.22	38	2.289	168	1.619	2.218
22.	1	0	8	0	0	89	.169	.742	3	0	0			101	.149	.698
23.	2	0	7	0	0	8	0	0	7	.143	.378			24	.042	.204
24.	4	0	17	.176	.529	19	.053	.229	13	.231	.439	9	0	62	.113	.367
25.	13	0	2	0	0	8	0	0	5	0	0			28		
26.	7	0	57	.193	.833	162	.259	1.025	41	.146	.573	5	0	272	.217	.906
27.	9	0	17	0	0	25	.120	.60	20	.250	.786	19	.211	90	.133	.545
28.	6	.667	15	.267	1.033	10	1.00	3.162	5	0	0	1	0	37	.486	1.85
29.	2	1.0	7	0	0	6	.50	1.225	6	0	0			21	.238	.768
30.	15	.267	34	.088	.514	40	.075	.267	38	.053	.226	20	.890	147	.197	.799
31.																
32.	1	0												1		
												ALL PROJECTS		2130	.297	1.074

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APPENDIX E

COMPENDIUM OF HEW RESOURCES AND SAMPLE HEALTH START PROJECT PROFILE

Program Name and Agency	Program Description	Beneficiary Eligibility	Matching Requirements	$ Amount Federal Funds Allocated to States or Projects FY 1972	FY 1973	Contact Level for Coordination
MEDICAID MEDICAL SERVICES ADMINISTRATION Social & Rehabilitation Service TITLE XIX Reimbursement MSA, SRS	Reimbursement program administered by state governments within federal guidelines and individual state regulations. Provides essentially episodic medical and sometimes dental care services with no built in plan for assuming continuity of care. Medicaid requires states to reimburse for inpatient hospital services, outpatient hospital services, other lab. and X-ray, physicians services, and home health services for individuals entitled to skilled nursing home care. Other services, including dental care, are optional and vary by state.	Income: States required to provide coverage to cash recipients (categorically needy). Some states also cover medically needy children not in AFDC, and medically needy foster children.	Formula grants for reimbursement (50-83% federal and remainder state and local)	$4,018,681,000	$4,502,687,000	State level. Public Health, Social Service or Welfare Depts. Sometimes all 3.
MSA, SRS	Newly expanded coverage requires early and periodic screening, diagnosis and treatment of children, also on a reimbursement basis. This is required for categorically needy children in all states, and for medically indigent children in states which have taken the basic requirement option (which includes EPSDT) rather than the 7 other services option. Where it is provided, dental, hearing, and vision screening are mandatory.	States required to provide screening for children 0-6. Expected to be expanded to 0-21 years of age by July 1, 1973. This applies to categorically needy children in all states, and medically needy children in most states.	Same as above.	Included in above.		Same as above.

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Program Name and Agency	Program Description	Beneficiary Eligibility	Matching Requirements	$ Amount Federal Funds Allocated to States or Projects FY 1972	FY 1973	Contact Level for Coordination
SRS (Continued) TITLE XI Section 1115 (MSA, SRS)	Special funds are awarded to a state sponsored project. These funds are available only for experimental, pilot, or demonstration projects which HEW determines to be likely to assist in promoting the objectives of the program. Need a waiver of the law to provide services to special groups of people. Projects must be approved at the state level before going to the regional level. Approval and funding at the regional level.	Same as Medicaid except in special instances when waiver of the law is approved.	Medicaid money is subject to regular matching requirement. Need special funds for project. It is possible to finance the project through regular state matching or special funds. (Most projects use both.)	$4 million limit for special funds.	$4 million limit for special funds	State Level
MATERNAL AND CHILD HEALTH FORMULA GRANTS	Formula grants to state health departments to help extend and improve maternal and child health services. Provides case-finding either by contracting out or with own personnel. Dental care, clinic services, health education, immunizations, well-child care, premature infant care provided. Reimbursement for services from physicians and hospitals, and possibly pay hospital salaries for appropriate personnel if severe shortage.	Age: 0-21 Additional criteria varies by state.	Federal money is divided into two equal parts. Fund A and Fund B. Fund A: Each state receives a minimum of $70,000 plus additional funds in proportion to the number of children under 21. 50% matching required. Fund B: A minimum of $70,000 for each state plus additional funds which vary w/# of live births and per capita income of state. (Part of this fund is reserved for mental retardation together to other special projects	$49,237,500. Fund A: $29,625,000. Fund B: $19,612,500. Total: $49,237,500. Apportionment	$50,574,500. Fund A: $30,384,000. Fund B: $20,185,500. Total: $50,574,500. Tentative Apportionment	State health departments

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Program Name and Agency	Program Description	Beneficiary Eligibility	Matching Requirements	$ Amount Federal Funds Allocated to States or Projects FY 1972	FY 1973	Contact Level for Coordination
CHILD DEVELOPMENT CLINICS MCHS, HSMHA	Project grants for 150 mental retardation clinics for screening, diagnosis, treatment, parent counseling, etc. for children with mental retardation.	No eligibility requirement for initial diagnosis. Income requirement for treatment only. Requirements for geographic residence and age (although generally 0-21) vary by state.	No matching requirement.	$4,750,000. Apportionment	$4,750,000. Tentative Apportionment	State health department for location of nearest project.
CRIPPLED CHILDREN'S AGENCIES FORMULA GRANTS MCHS, HSMHA	Formula grants usually to state health depts. All states have field clinics which employ physicians and other medical personnel. No direct funding to hospitals, but will reimburse specific children in approved hospitals, for physician office visits and in some cases for physical therapists. Most of money spent on medical and hospital and convalescent care. Scope of coverage varies by state.	Age: 0-21 Condition: Crippling or potentially crippling. (Except for diagnostic services) Provides diagnostic services for all within age limit, but treatment is related to income.	All federal money given to states divided into two equal parts: Fund A and Fund B. Fund A: Each state receives a minimum of $70,000 plus additional funds in proportion to the number under 21 in that state. 50% matching funds are required. Fund B: Funds vary by state according to per capita income and number of children in urban and rural areas. No matching required. (Part of this fund is reserved for mental retardation and other special projects.) In addition, federal regulations require the state to continue to spend at the level of FY 1968. So in terms of actual money spent in the program, 40% federal and 60% state.	Fund A: $31,136,000. Fund B: $19,602,000. Total: $50,738,000. Apportionment	Fund A: $32,450,000. Fund B: $20,587,500. Total: $53,037,500 Tentative Apportionment	State level, but in some areas might be referred (by state level program personnel)

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Program Name and Agency	Program Description	Beneficiary Eligibility	Matching Requirements	$ Amount Federal Funds Allocated to States or Projects FY 1972	$ Amount Federal Funds Allocated to States or Projects FY 1973	Contact Level for Coordination
CRIPPLED CHILDREN Reimbursement for Services	Reimbursement for services and care for mentally retarded and physically handicappted children. Crippled Children's Agencies do not operate separate clinics (as MCHS does). Also pays for physical care of children in institutions.	Age: 0-21 Condition: Crippled and mentally retarded.	No matching required.	$5,000,000. Apportionment	$5,000,000. Tentative Apportionment	Same as above.
CHILDREN AND YOUTH PROJECTS MCHS, HSMHA	Project grants to provide comprehensive, complete and continuous health care services to children in low-income areas. Provides access to medical, dental, physical and emotional health services. 59 projects serve 456,000 children.	Age: 0-21 Residence: Specific geographic area. Family income.	Project grant for direct service. Federal grantees are medical schools, teaching hospitals and health departments, which coordinate to provide comprehensive health care.	$47,400,000. Project grants (estimate)	$52,842,000. Project grants (estimate)	Contact project directly if accessible.
MATERNITY AND INFANT CARE PROJECTS MCHS, HSMHA	Projects provide health care in 3 areas: maternity care, infant care and family planning. Goals are reduction of mental retardation and other conditions caused by complications in child-bearing; reduction of infant and maternal mortality. Also nutrition and homemaker services. 56 projects serving 30,000 expectant mothers, 48,000 infants, and providing family planning services to 95,000 women.	Either: female of any age or infant (under 1-year) of either sex. Residence: specified geographic area (usually low-income and without access to prenatal, infant or family planning.	Project grants for direct service. Federal funds must not exceed 75%. Grantees are State Heealth Agencies, or with their consent to health agencies of any political subdivision of the state or any other public or nonprofit agency, institution or organization.	$42,675,000. Project grants (estimate)	$46,332,000. Project grants (estimate)	Contact project directly if accessible.
PROJECTS FOR DENTAL HEALTH OF CHILDREN MCHS, HSMHA	Projects provide continuous and comprehensive dental care including treatment, diagnosis, prophylaxes, education, utilizing recall system and periodic evaluation of care. 18 projects serving primarily low-income children from 3-10 years.	Age: 0-21. (focus on 3-10 years). Income: means test for treatment only. (diagnosis, prophylaxes and education not restricted.)	Project grants for direct care. Federal funds may not exceed 75%. Grantees are health departments, hospitals and voluntary agencies.	$1,180,000 Project grants (estimate)	$1,256,000. Project grants (estimate)	Contact project directly if accessible.

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Program Name and Agency	Program Description	Beneficiary Eligibility	Matching Requirements	$ Amount Federal Funds Allocated to States or Projects FY 1972	FY 1973	Contact Level for Coordination
COMMUNITY HEALTH CENTERS (314e) HSMHA	Community health centers deliver family oriented comprehensive care in areas of health scarcity. Scope of care varies by center. Fifty-five projects including 16 recent transfers from OEO.	Residence: specific geographic area. Income: criteria necessary for OEO transfer centers only. Minimum level rises with family size.	Project grants for direct service. Joint funding may occur. Third-party participation occurs frequently, and sliding scale consumer payments payments are used in some Centers.	$80,000,000. Approximate funds supporting centers.	$100,200,000. Requested	Contact Community Health Center directly if accessible.
INDIAN HEALTH SERVICE HSMHA	Indian Health Service operates hospitals and other health facilities for Indians living on reservations, in order to improve the quality and availability of maternal and child health service so that Indian and Alaskan native parents and children may attain and maintain optimum physical, mental and emotional health. Includes access to prenatal, maternity and family planning services. Serves 260,000 children. Hospitals and satellite clinics including well-baby, pre- and post-natal, and special program in otitis media.	Residence: Indian Reservation. Must be part Indian. Exception: some facilities open to the public, particularly for preventive health care and usually in areas with no other facilities.	Direct service, some contract payments.* 100% federal funds *agreements with hospitals, doctors and health departments in areas without IHS facilities.	$153 million allocated	$163 million allocated	Contact Indian Health Area Director in one of 8 Indian Area Offices.
MIGRANT HEALTH SERVICE HSMHA	Project grant to increase availability of high-quality family-centered services to migrant and seasonal farm workers and other families. 117 projects being funded as of 4/2/72. Types range from comprehensive health service to administrative service only.	No restrictions. Usually set-up in areas populated only by migrant or seasonal farm workers.	Project grants for direct service. No fixed matching ratio, but all grantees pay a part of the cost which varies by project. Eligible grantees are public and non-profit private agencies, institutions or organizations.	$18.2 million appropriated $17.9 million allocated	$23.8 million estimated appropriation	Contact project directly if accessible.

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Program Name and Agency	Program Description	Beneficiary Eligibility	Matching Requirements	$ Amount Federal Funds Allocated to States or Projects FY 1972	FY 1973	Contact Level for Coordination
NATIONAL HEALTH SERVICE CORPS						
HSMHA	Program places medical personnel (no money) in communities which lack adequate health services and pays their salaries for 2 years. They are assigned to existing projects and community organizations. All money collected in fees by program personnel is returned to national office. 142 communities have been approved and personnel assigned to 132 of them to date. 288 personnel have been assigned this year.	None: except geographic area for certain projects.	100% Federal Manpower only. Personnel have not been allocated by region so far.	Currently $7.8 million but could grow to $15 million thru reimbursement.		Contact HEW Regional Health Director.
COMMUNITY MENTAL HEALTH CENTERS						
MSMHA	Centers offer mental health care to a prescribed geographic area stressing accessibility, continuity & comprehensiveness; and furnishing five essentail services: inpatient, outpatient, 24-hour emergency care, partial hospitalization, and consultation and education. Over 400 centers. Some have special facilities and programs for children, such as therapeutic nursery school, counseling and therapy for parents, and training sessions for pediatricians in detecting early problems.	Residence: specific geographic area. Sliding scale fees are required by Federal law.	Project Grants Federal portion of eligible salary costs: 75% - 1st 2 yrs.) 60% - 3rd year) 8 year 45% - 4th year) period 30% - last 4 yrs.) Exceptions: higher in some poverty areas.	$133,974 awarded for staffing grants (federal portion of eligible salary costs).		Contact HEW Associate Regional Health Director

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Program Name and Agency	Program Description	Beneficiary Eligibility	Matching Requirements	$ Amount Federal Funds Allocated to States or Projects FY 1972	FY 1973	Contact Level for Coordination
COMMUNITY MENTAL HEALTH CENTERS HSMHA (Part F)	Part F of the Community Mental Health Act authorizes grants for construction, staffing, training, surveys, and field trials for mental health programs for children. Priorities include development of preventive programs that reach out to children in their normal family and neighborhood life settings; stimulation and development of innovative approaches to coordinating and integrating existing human services in community mental health centers with other community child and family health services and experimental approaches to local health delivery systems. Grantees are 61 existing Community Mental Health Centers. FY 72 funds are used only to support staffing grants.	Residence: specific geographic area. Sliding scale fees are required by Federal law.	Federal portion of eligible salary costs: Not to exceed 80%* for each of the first 2 yrs. Percent decreases each year for the next 6 yrs. /8 year period/ * 90% in areas designated as urban or rural poverty areas by the Secretary.	$9,950,000. Awarded for Part F children's programs. $10 billion has been appropriated FY 72.		Contact HEW Associate Regional Health Director.

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RESOURCE PROFILE FOR ORLANDO, FLORIDA HEALTH START

SOURCE	CONTACT(S)	RESOURCES AVAILABLE TO PROJECT OR STATE
American Academy of Pediatrics	Regional Health Liaison Specialist: Local Health Consultant: Stephen P. Gyland, M. D. 2606 Park Street Jacksonville, Fla. 32204 Tel: 904-388-4646	Technical Assistance paid for by OCD Contract.
MEDICAID (TITLE XIX)	State: Mr. E. Douglas Endsley Secretary Dept. of Health & Rehab. Services Room 432 Larsen Bldg. Talahassee, FL 32304 or Mr. Wright Hollingsworth Chief, Bureau of Med. Serv. Division of Family Services Dept. of Health & Rehab. Services P. O. Box 2050 Jacksonville, FL 32203 Regional: Mr. E. Ronald Niswander Community Services Administration Social and Rehabilitation Service Room #344 50 Seventh St., N. E. Atlanta, Georgia 30323 Tel: 404-526-3482	FY 72: $58,665,000 FY 73: $85,451,000 Fed. Medical Assistance Percentage: 61%

SOURCE	CONTACT(S)	RESOURCES AVAILABLE TO PROJECT OR STATE
MATERNAL & CHILD HEALTH REGIONAL CONTACT	NAME UNAVAILABLE	
MATERNAL & CHILD HEALTH SERVICES	A. F. Caraway, M. D., Director Bureau of Maternal and Child Health Dept. of Health & Rehabilitative Services Tallahassee, Florida 32304 Tel: 904-354-3961	FY 72 Fund A $ 807,484 Fund B $ 851,609 Total $1,659,093 FY 73 Fund A $ 829,300 Fund B $ 821,100 Total $1,650,400
CRIPPLED CHILDREN'S AGENCIES	F. Edwards Rushton, M. D., Chief Bureau of Crippled Children Department of Health & Rehabilitative Services Tallahassee, Florida 32304 Tel: 904-222-4063	FY 72 Fund A $ 889,200 Fund B $ 595,900 Total $1,485,100 FY 73 Fund A $ 934,100 Fund B $ 632,200 Total $1,566,300
CHILDREN AND YOUTH PROJECTS	GEOGRAPHICALLY INACCESSIBLE NOT AVAILABLE IN STATE	
MATERNITY-INFANT CARE PROJECTS 832	M&I Project Orange County Health Dept. 832 Central Blvd. Orlando, Fl. 32801	FY 72: $312,000 FY 73: $337,000
PROJECTS FOR DENTAL HEALTH OF CHILDREN	NOT AVAILABLE IN STATE	
COMMUNITY HEALTH CENTERS	GEOGRAPHICALLY INACCESSIBLE	

SOURCE	CONTACT(S)	RESOURCES AVAILABLE TO PROJECT OR STATE
INDIAN HEALTH SERVICE	Program Officer USET I H S - P H S 1970 Main Street Sarasota, Florida Tel: 813-958-3919	FY 72: $699,000 FY 73: $740,000
MIGRANT HEALTH SERVICE	Migrant Health Project Orlando: Orange County Health Dept. P. O. Box 3187 Orlando, Florida 32805 Tel: 305-241-4311 Wilfred N. Sisk, M. D.	Amount Awarded $35,471 Future Committment $0
	Sanford: Seminole County Health Dept. P. O. Box 1856 Sanford, Florida 32771 Tel: 305-322-2724 L. F. Friend, M. D.	Amount Awarded $56,937 Future Commitment $0
NATIONAL HEALTH SERVICE CORPS	Regional Director National Health Service Corps James A. Bax, M.D., Secretary Division of Health Jacksonville, Florida 32201 Tel: 904-222-4063	Program supplies personnel
COMMUNITY MENTAL HEALTH CENTERS	Mr. William D. Wright 50 Seventh St., N. E. (Rm. 423) Atlanta, Georgia 30323	Approximately $1,255,665 available to Region IV in FY 1972. Data not available for FY 1973

APPENDIX F

MEASUREMENT PROBLEMS IN HEALTH SCREENING AND TREATMENT PROCESS

APPENDIX F

MEASUREMENT PROBLEMS IN HEALTH SCREENING AND TREATMENT PROCESS

Chapters VII and VIII gave health incidence data and the costs of screening, diagnosis, and treatment of detected health problems. However, analysis shows that there is greater variability among projects on many of the measures than one can reasonably attribute to variation in health status among children. In other words, one can assume that some projects screened and diagnosed children as well who would have been found sick by other projects, and some projects provided treatment for children whom other projects would not have treated.

In addition to the expected variance in the children tested, some of this variance can be attributed to the environment in which the tests were given, to different types of tests used to find a particular health problem, to different interpretation of the same test results, and to different decisions as to whether the results call for treatment. Whatever the reasons, this variation among projects must be taken into account when interpreting the results presented in Chapters VI and VIII.

The purpose of this Appendix is to address certain value and cost factors related to a health detection and treatment program. Even though the Health Start evaluation was not to include an assessment of the quality of the care given in the program, the variability across projects in costs and detection and treatment rates points to a need for further study to determine how to design a low-cost/high-yield screening program. This chapter presents a theoretical model based on Health Start data to illustrate the type of investigation needed to gain maximum benefits from a screening program.

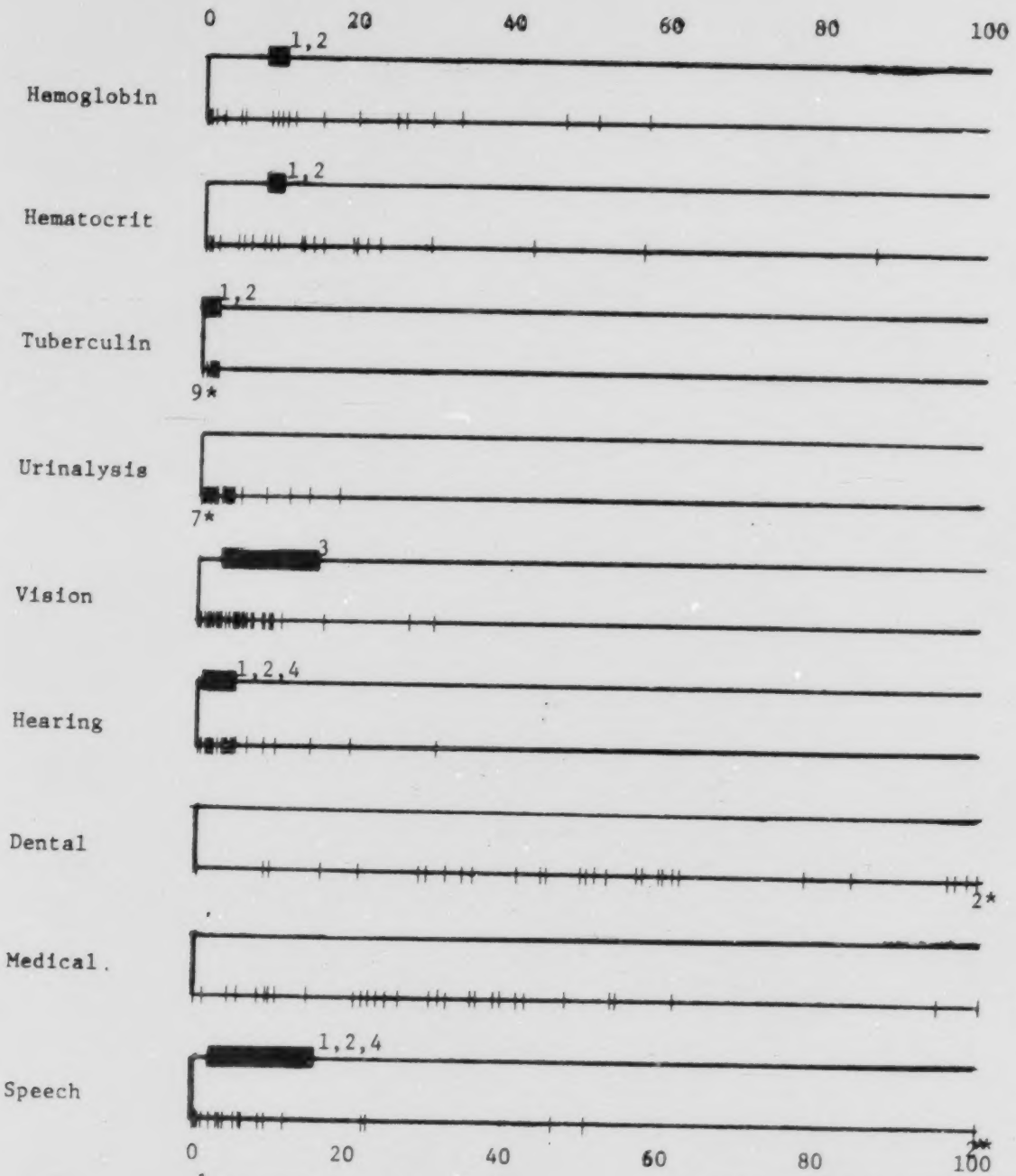

Figure F-1--**Percentage of Children Screened as Abnormal by Project**
(Children with N less than 15 not included)

* Number of Projects

Start projects were outside these limits in referring children with possible vision problems. Eleven of these projects referred less than 3.6 percent of the children, and this suggests that many children suffered from vision problems that were not detected ("false negatives"). On the other hand, three projects referred more than 14.7 percent, and this could indicate that many children with normal vision in these projects were referred for further diagnosis ("false positives").[1]

Dental exams represent a basic health screen with a great deal of variability among projects, yet much of the variability may be due to true differences in children. Chapter VI showed that only 26 percent of the children required dental treatment in areas with fluoridated water as compared to 75 percent in non-fluoridated areas. However, this alone cannot account for all the variance found among projects as shown in Figure F-1.

As the graph illustrates, in six of the eight tests, the variability among Health Start projects is more than one would expect to find if the only factor involved was the true variability in health status among children. In the next section, there is a theoretical discussion of the possible sources of error variance that might be responsible for the large variability found among Health Start projects. To illustrate the points made in the theoretical discussion, examples are presented of real sources of error variance already identified in the Health Start data.

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1. The studies varied in the types of tests used, the conditions under which the tests were given and the individuals administering the tests. Any one of these factors could influence the test results and the referral rates.

B. General Measurement Problem: The Theoretical Framework

The purpose of screening is to identify children with health problems and to send those who are in need for diagnosis and treatment. However, screenings are never perfectly correlated with real health problems.[1]

In attempting to predict real health status from the results of the screening tests, it is necessary to know that, as in Figure F-2, a perfect screening test would be one in which all points fell along line marked "perfect correlation and having no dispersion." Figure F-2 reveals that the trend line, which is the line of best fit when trying to predict real health status from the screening tests, may be different from the perfect correlation line. Because of the possibility of systematic bias and measurement errors:

a. some normal (well) children will be found abnormal (sick) as a result of a screen (false positive[+]), and

b. some abnormal (sick) children will be determined to be normal (well) as a result of a screen (false negative[-]).

Well children found to be abnormal, as a result of a screen, cost money for unnecessary diagnosis and treatment plus unnecessary trauma for both the child and the parent. Sick children found to be well through the

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1. The variance that results in the lack of perfect correlation is due in part to unreliability of measurements (random variation) and in part to a lack of validity of measurement (systematic bias). These two sources of error are schematically diagrammed in Figure F-2. The reliability of a measurement procedure is the extent to which the procedure produces the same results each time it is applied (assuming, of course, that the object or process being measured does not change). The validity of a measurement procedure is the degree to which the procedure measures what it was intended to measure. Basic to this definition is the assumption that there exists a "better" measure of the phenomena with which the measure under question can be compared.

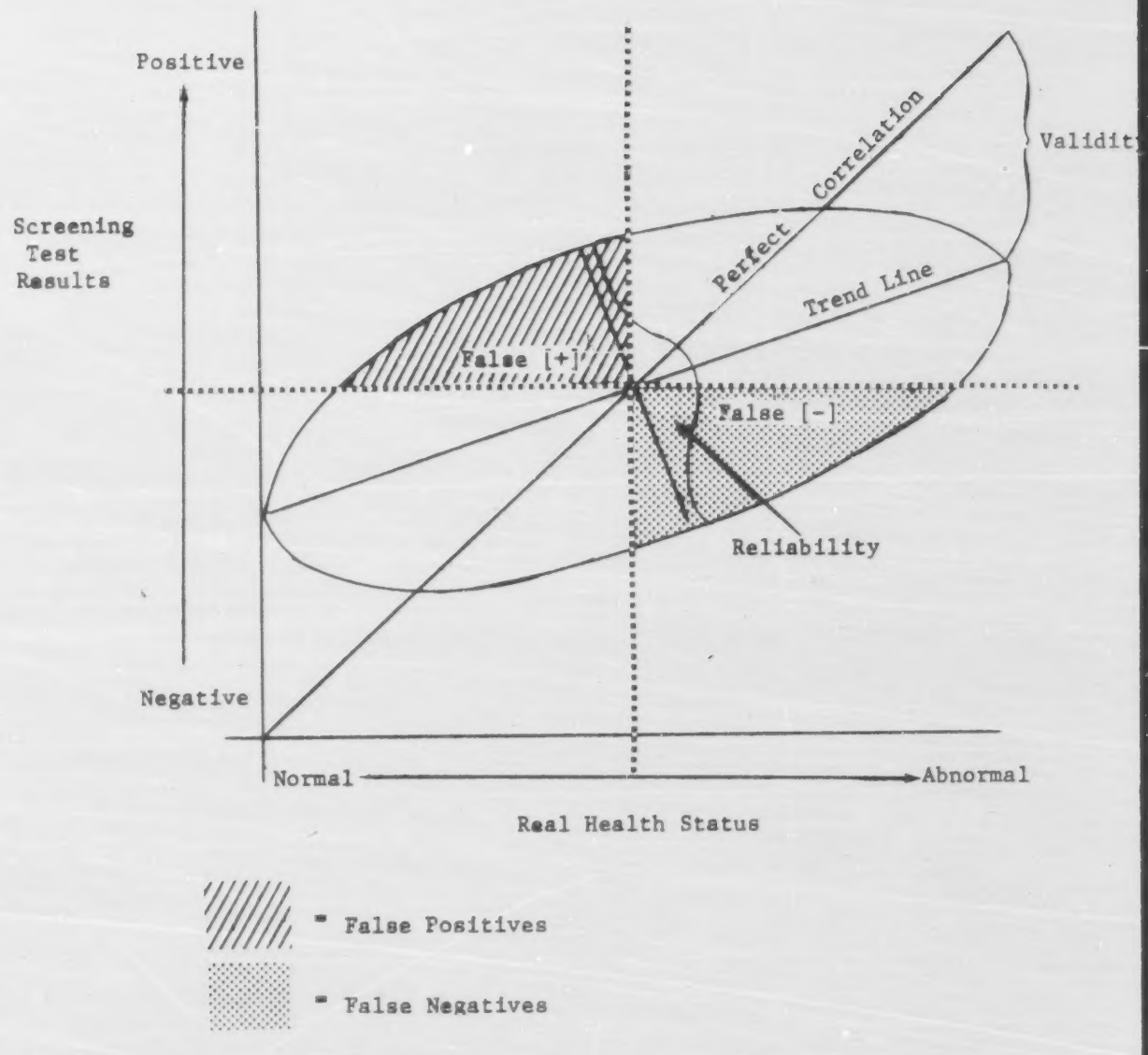

Figure F-2—Schematic diagram of sources of error in the detection of health problems from screening tests.

screening procedure are an even more serious problem. Early treatment for most health problems is expected to be less expensive in the long run and certainly better for the long range health of the child, because many of the health problems found are potentially handicapping. This is particularly true for economically disadvantaged children for whom good health care and continuous health supervision (and thus the ability to detect previously missed health problems) are much less likely than in the rest of the population. The incidence and cost data presented in Chapters VII and VIII, therefore, must be qualified with an understanding of these types of measurement problems.

Since the health providers understand that the results of screening tests are not meant to be perfect, possible attempts by them to compensate for errors add two other sources of variance to the data: (1) variance caused by different interpretations of the screening tests (the cutoffs or threshold levels used by different individuals interpreting the screen to determine a positive test result); and (2) the decision of health service providers in the diagnostic step in determining when treatment is needed.[1] These two sources of additional variance are schematically shown in Figure F-3.

If a screening test is to detect a health problem for which further diagnosis and treatment are relatively cheap (such as an anemic condition), then the interpreter may lower the threshold level from line A (which represents an average cutoff point) toward line C to eliminate as many false negatives as possible. This, of course, increases the number of false positives and their subsequent treatment costs.

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1. In practice these two sources of variance may not be separable. However, because the possibility exists, the theoretical discussion addresses them separately.

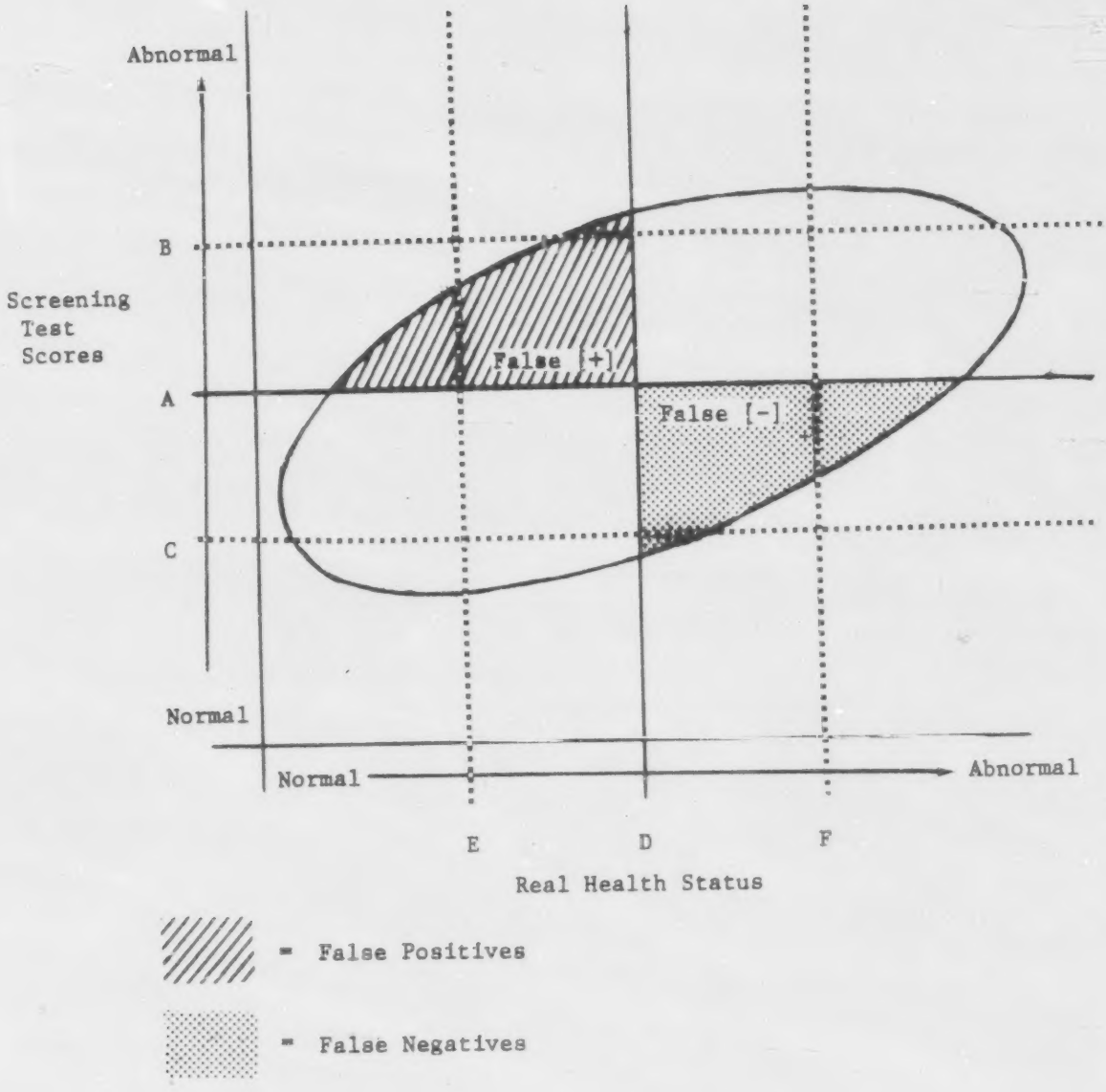

Figure F-3--Schematic diagram of possible variance introduced by the interpretation of the screening tests and by the decision that a health problem requires treatment.

If the screening test is attempting to detect a health problem for which further diagnosis and treatment are expensive (such as some heart defects), then the interpreter may raise the cutoff line from A toward B to eliminate as many false positives as possible but with the danger of increasing false negatives.

When he has decided to administer treatment which is inexpensive and without undesirable side effects (for example, an iron supplement for anemia), the health service provider may move the cutoff for providing treatment from line D (which represents an average cutoff point toward line E. If the treatment is expensive and/or has other undesirable side effects, the provider may decide to treat only those he considers in critical need of treatment and thus move the cutoff line more toward line F.

Because of these possible sources of variance in the interpretation of screening tests, in the diagnosis, and in the decision to provide treatment:

a. some health service providers will diagnose children as abnormal that others would diagnose as normal, and

b. some health service providers will administer treatment to children for health problems, whereas others would not provide such treatment.

C. Error Variance in Health Start Data

The preceding discussion presented a systematic framework for identifying different sources of error variance in the Health Start Quarterly Report data. In the next section, the magnitude of different sources of variance in the Health Start data is illustrated along with some of the reasons for the variance. The section is illustrative rather than complete, because

data are not available to identify contributions made by each source of variance for all the measures obtained. The examples, at best, can provide the reader with some understanding of the magnitude of the variance in certain measures; hopefully this will allow him to interpret more accurately the health incidence data presented in Chapter VIII.

1. Reliability of Blood Tests and Interpretation of Those Tests

The blood tests given the Health Start children provide a unique opportunity to examine the reliability of at least one type of screening. Table F-1 indicates how the variance caused by the unreliability of the test is related to the number of false positive and false negatives associated with referrals. Fifteen percent of the children received both a hematocrit and a hemoglobin test, and, for these tests, the scores as well as the interpretations of the test are available. Consequently, evaluators can construct a rough idea of the unreliability of these two tests when given to the same children, and they can detect the variations in interpreting these test results across several projects.

Table F-1, reproduced from Chapter VIII, shows the number of children screened, their reported hematocrit and hemoglobin values, and the percent of that number who were reported as needing treatment. While the correlation between the two tests is reasonably high, there are a number of cases in which a child has a "normal" reading on one test and an "abnormal" reading on the other. For example, 10 children receiving both tests were above 36.0 on the hematocrit scale and under 10 on the hemoglobin scale.[1] One child was above 11.5 on the hemoglobin scale and under 26 on the hematocrit scale.

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1. An acceptable hemoglobin reading for two-five year olds is above 11.0 grams and an acceptable hematocrit reading for two-five year olds is above 33 percent. Source: Ten State Nutritional Survey 1968-1970, U.S. Department of Health, Education, and Welfare, Publication No. (HSM)72-8132.

TABLE F-1

RESULTS OF HEMOGLOBIN AND HEMATOCRIT TESTS;
PERCENT OF NUMBER REPORTED "NEEDING TREATMENT" AND NUMBER OF CHILDREN BY RANGE OF RESULTS

Percent of Number Not OK (Number of Children)			RANGE OF HEMOGLOBIN VALUES (Gm./100 ml.)										
			Abnormal			Normal							
			Under 10	10.0 to 10.4	10.5 to 10.9	11.0 to 11.4	11.5 to 11.9	12.0 to 12.4	12.5 to 12.9	13.0 to 13.4	13.5 to 13.9	14 and Above	Total
RANGE OF HEMATOCRIT VALUES (%)	Under 26.0	ABNORMAL	83% (12)	0% (1)	0% (1)	--- ---	100% (1)	--- ---	--- ---	--- ---	--- ---	--- ---	73% (15)
	26.0 to 27.9	ABNORMAL	81% (16)	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	--- ---	81% (16)
	28.0 to 29.9	ABNORMAL	92% (25)	33% (3)	--- ---	--- ---	0% (1)	--- ---	--- ---	--- ---	--- ---	--- ---	86% (29)
	30.0 to 31.9	ABNORMAL	81% (16)	22% (36)	0% (9)	0% (5)	29% (7)	0% (2)	0% (1)	0% (1)	--- ---	--- ---	30% (77)
	32.0 to 33.9	NORMAL	50% (4)	12% (26)	9% (47)	4% (46)	36% (22)	25% (4)	0% (1)	--- ---	--- ---	--- ---	14% (150)
	34.0 to 35.9	NORMAL	100% (2)	43% (7)	31% (13)	14% (147)	8% (67)	12% (42)	27% (22)	0% (5)	0% (1)	0% (5)	15% (311)
	36.0 to 37.9	NORMAL	13% (8)	23% (13)	18% (11)	23% (30)	9% (104)	7% (103)	7% (47)	0% (27)	0% (7)	0% (4)	9% (354)
	38.0 to 39.9	NORMAL	0% (2)	0% (13)	11% (9)	17% (12)	6% (16)	0% (85)	0% (108)	0% (60)	0% (21)	0% (8)	1% (334)
	40.0 to 41.9	NORMAL	--- ---	0% (1)	--- ---	--- ---	--- ---	0% (8)	0% (17)	0% (57)	0% (21)	0% (15)	0% (119)
	42.0 and Above	NORMAL	--- ---	--- ---	--- ---	--- ---	--- ---	0% (1)	0% (2)	0% (10)	0% (14)	0% (22)	0% (49)
HEMAT	Total		74% (85)	18% (100)	12% (90)	13% (240)	12% (218)	5% (245)	5% (198)	0% (160)	0% (64)	0% (54)	

Table F-1 also reveals even more variance in the interpretation of the findings. For example, only 12 percent of the children with hemoglobin values of 10.0 to 10.4 and hematocrit values of 32.0 to 33.9 were reported as needing treatment, while 17 percent of the children with hemoglobin values of 11.0 to 11.9 and hematocrit values of 38.0 to 39.9 were reported as needing treatment. Equally surprising, only 83 percent of the children with hemoglobin values under 10 and hematocrit values under 26.0 were screened as needing treatment. Health Start data show a tendency among those diagnosing the children to rely on the hematocrit test instead of the hemoglobin test when the two show slightly different results, possibly because the hematocrit can be done more accurately.[1]

The blood tests are probably as reliable, if not more so, than most of the other screening tests used in Health Start. Consequently the other tests are likely to be even more variable than the blood tests, however, evaluators lack sufficient data to obtain estimates of this variability. To obtain the data for making such reliability estimates the same children would have to receive screening tests at least twice over a relatively short time span. Health Start was not designed to provide this type of information, however, agencies responsible for developing health service delivery models should expend some of their funds to obtain estimates of the reliability of screening tests used in health screening programs for children.

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1. It is easier to determine an "abnormal blood state" with a hematocrit than a hemoglobin test. A normal blood level cannot be defined clearly through a hemoglobin test. However, if done properly, an accurate test of hemoglobin concentration is the best screening test for anemia. Source: Head Start Health Services, #2, U.S. Department of Health, Education, and Welfare, 1969.

2. Another Estimate of False Positive Rate

Data taken from one project[1] on 12 screening tests illustrates the false positive problem. Table F-2 shows the total number screened, the number detected as abnormal and referred for further diagnosis, the number of those referred that completed the referral, and the number and percent of those completing referral for which the screening finding was confirmed. (100-minus the percentage confirmed is the false positive rate, shown in the last column,)

Table F-2 indicates that the false positive rate ranges from 17 percent to 100 percent with a median of about 50 percent. The problem in drawing conclusions from these figures, of course, is that a crucial factor is unknown--how many children with health problems were not detected and referred for treatment (false negatives).

D. Variability in Prescribing Treatment

Once a diagnosis is made, there is the further decision as to whether treatment should be administered. Decisions about dental work illustrate how varied judgments about administering treatment lead to variability among projects. Figure F-4 shows that the project averages of the number of caries restored per child range from 0.1 to 11.1. The project with an average of 11.1 caries per child was based on 28 children--a fairly large number. National statistics shows that a reasonable average number of caries for pre-school children is two to four.[2]

---

1. Data are from 1971-72 Tulsa Health Start project, using multiphasic screening. Tulsa was the only Health Start project in the two year demonstration that reported false positives.

2. The Health Start data only include the caries repaired; not the total number of caries. Therefore, in projects not completing all dental treatment we expect the incidence of dental caries to be higher than the reported number of caries restored.

TABLE F-2

EXAMPLE OF FALSE POSITIVE RATE

Data Source: Tulsa Health Start Project, March 1972

Test	Total Number Screened	Number Referred	Number Completing Referral	Number Confirmed	Percent Confirmed Completed Referral	False Positive Rate
1. Vision						
a. Snellen Chart	1803	78	41	25	61	39
b. Other Problems	1803	139	74	54	73	27
2. Audiometric	1741	172	59	22	37	63
3. Cardioscan	1803	82	24	9	38	62
4. Dental	1803	330	148	95	64	36
5. E.N.T.	1803	53	42	21	50	50
6. Hematocrit	1803	37	26	18	69	31
7. Urine-Protein	1803	49	31	5	16	84
Sugar	1803	3	2	0	0	100
8. Tuberculin	1726	9	9	6	67	33
9. Speech	1803	259	140	116	83	17
10. Social Dev.	1803	53	20	8	40	60
11. Orthopedic	1803	112	73	40	55	45
12. Other Medical Problems	1803	107	53	33	62	38

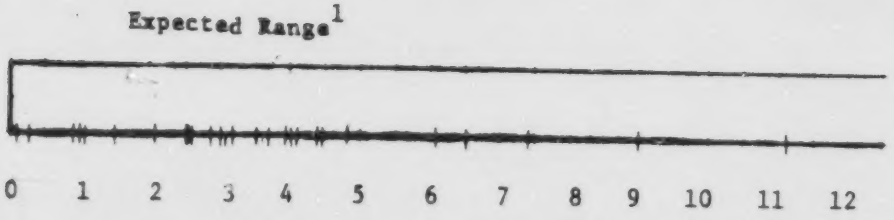

Figure F-4--Mean Number of Caries Restored Per Child Per Project (27 Projects) Children per project ranges from 17 to 272.

1. Source: Health Start Quarterly Health Reports, June 1973.

Some of this variation can be accounted for as true variance. Children in areas with flouridated water had an average of 1.8 caries repaired per child receiving dental treatment while children in nonflouridated areas had an average of 4.2 repaired caries per child receiving dental treatment. While these findings can help explain the variability at the lower end of the graph, they do not explain the extremes at the upper end of the graph.

Because data were collected only on the number of caries repaired and not on the number of caries present, project statistics represent work completed, not the true prevalence of dental problems. Variations in the data could be related to decisions whether to repair caries. In one project, rather than the screening done by a dentist, the physician conducting the physical exams, made referrals to a dentist when he thought a child needed dental treatment. In the same project, a dentist restored carious teeth only if a child had six or more caries, so the average number of caries repaired in that project probably is not a good measure of incidence of caries in that project. While these examples are undoubtedly extreme, other similar and less extreme decisions also caused variability among the projects that was not due to true variation in the health status of the children.

E. Cost and Error Rates in Screening Tests

The above examples indicate that, in some projects and under certain conditions, screening error rates could be high. Thus it is reasonable to ask under what conditions screening is or is not cost-effective.[1] The purpose of this section is to shed some light on that question.

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1. One factor not considered here is the experience of those conducting the screening. Inexperienced individuals may misread test results which can affect their referral rates. It is possible that more experienced individuals are more precise, which would make their work more cost-effective.

The tradeoffs involving costs and error rates in screening tests are the topic of a simple analytic model which has been developed to produce some illustrative numerical examples. For this analysis, screening tests are assumed valid but not completely reliable.

1. A Model

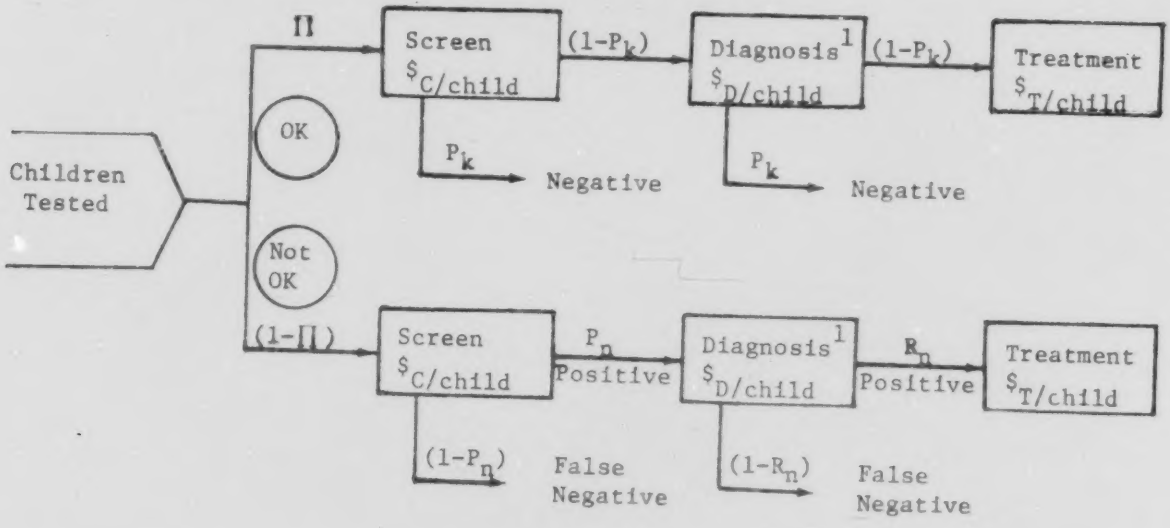
The purpose of a screening test is to identify children with health problems and to analyze further and treat only those who are in need. The following model is based upon one "benefit" and two "cost" measures:

Benefit: The number of children treated who need treatment.

Cost: The number of children who needed treatment but were not so identified (i.e., false negatives)

Cost: Dollar costs of detection and treatment of health problems

The parameters of the model are displayed in the flow diagram below. (In the diagram the children "OK" and the children "Not OK" are separated only for the purpose of defining the parameters.)



1. The diagnosis component of the model represents all activity performed on children with positive screening results prior to treatment or to being declared as not needing treatment by an authoritative medical opinion. These activities can include rescreening, further testing, analysis of health history and test results, and the professional diagnosis.

The parameters are defined as follows:

Π = fraction of children who are really OK

$(1-\Pi)$ = fraction of children who need treatment

R_k = probability that an "OK" child will be correctly identified by the screening test

$(1-P_k)$ = false positive rate for screening test

C = cost per child for screening

P_n = probability that a "not OK" child will be correctly identified by the screening test

$(1-P_n)$ = false negative rate for screening test

R_k, R_n correspond to P_k and P_n for the diagnostic procedure

D = cost per child sent for diagnosis

T = cost per child sent to treatment

The purpose of the diagnostic component in the model is to separate the added cost of dealing with children who are false positives from the screening test. In other words, it costs D dollars to "treat" a child who is OK and D+T dollars to treat a child who is not OK. The tradeoffs involving increasing screening costs, C, to buy decreasing error rates (false negatives and false positives, denoted by $1-P_n$ and $1-R_k$) will be explored.

For each child sent to screening the following average values[1] will result:

1. See flow on page F-17.

$$\text{sick children treated} = (1-\Pi)\,P_n\,R_n$$

$$\text{well children "treated"} = (\Pi)\,(1-P_k)\,(1-P_k)$$

$$\text{treatment costs} = T\left[(1-\Pi)\,P_n\,R_n + \Pi\,(1-P_k\,(1-R_k\right]$$

$$\text{children diagnosed} = \Pi\,(1-P_k) + (1-\Pi)\,P_n$$

$$\text{diagnosis costs} = D\left[\Pi\,(1-P_k) + (1-\Pi)\,P_n\right]$$

$$\text{false negatives} = (1-\Pi)\left[(1-P_n + P_n\,(1-R_n)\right]$$

$$\text{screening costs} = C$$

Since there are one benefit (sick children treated) and two costs (i.e., dollar costs and false negatives) and two "benefit-cost" measures can be formed:

$$M = \frac{\text{total money costs}}{\text{sick children treated}}$$

$$F = \frac{\text{false negatives}}{\text{sick children treated}}$$

which are computed as follows:

$$M = \frac{C + D\left[\Pi\,(1-P_k) + (1-\Pi)\,P_n\right] + T\left[(1-\Pi)P_n\,R_n + \Pi\,(1-P_k)\,(1-R_k)\right]}{(1-\Pi)\,P_n\,R_n}$$

$$F = \frac{(1-\Pi)\left[(1-P_n) + P_n\,(1-R_n)\right]}{(1-\Pi)\,P_n\,R_n}$$

A typical screening procedure is depicted in Figure F-5. For a given price of C dollars per child, a screening result is obtained which will either fall in the negative or positive region (on the vertical axis), and this may or may not indicate the true health needs as shown on the horizontal axis. For a typical screening test the results will fall somewhere in the dashed oval region. At a higher price some perfect screening procedure is

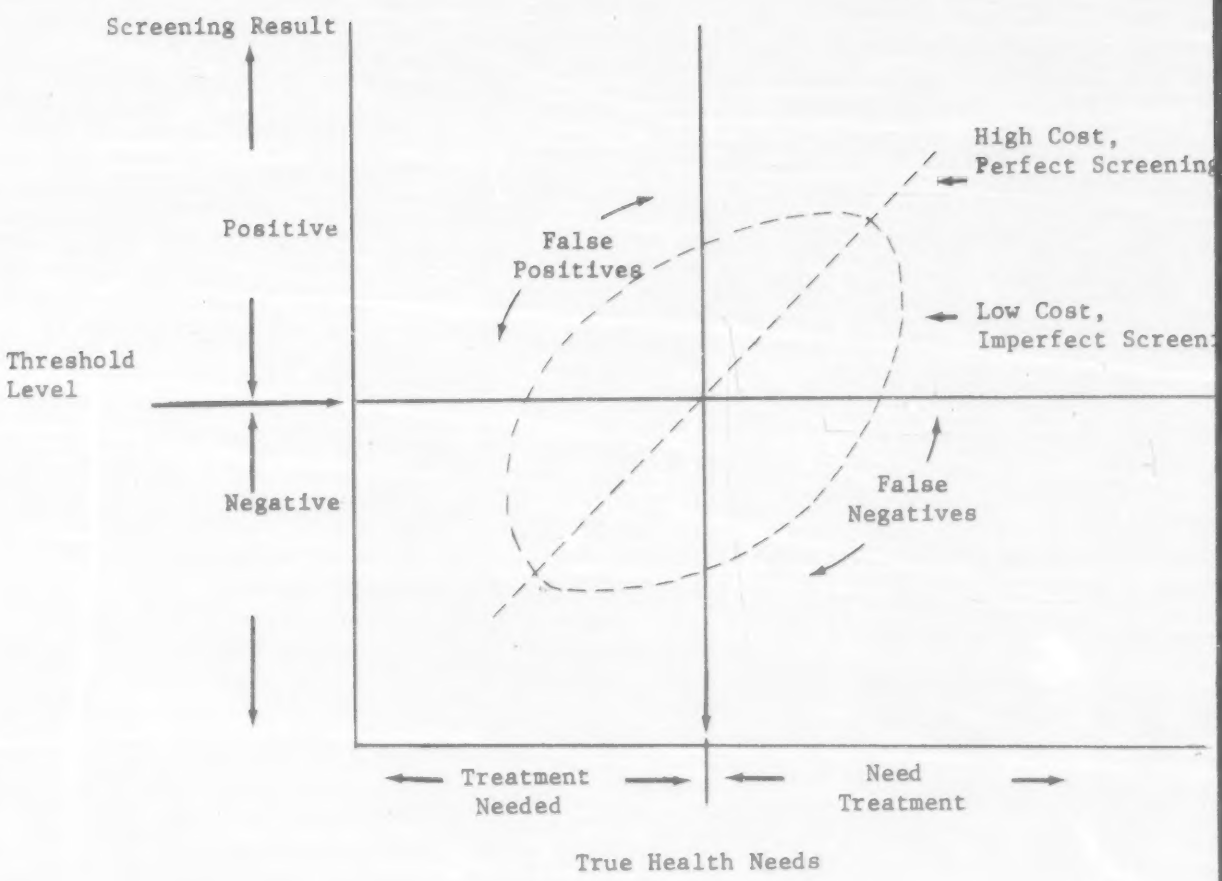


Figure F-5--Joint Distribution of Screening Result and True Health Needs

depicted by the dashed line. By adjusting the threshold level in an imperfect screening procedure, the number of false negatives will increase as the false positives decrease, or vice versa.

For the purposes of a numerical example, the tradeoffs between screening costs and error rates will be assumed to be as shown in Figure F-6. At a cost of zero one can randomly assign children to the positive and negative categories and fall somewhere on the "C=0" line. Moving the threshold level up in Figure F-5 corresponds to moving up along a curve in Figure F-6; false negatives increase and false positives decrease.

For the examples it will be assumed that the diagnostic procedure works without error, namely it correctly rejects all false positives from the screening test.[1] This is to assume $R_k = R_n = 1.0$, which allows simpler expressions for the ratios of false negatives per sick child treated and total dollar cost per sick child treated, namely:

$$F = \frac{1-P_n}{P_n} = \text{false negatives/sick child treated}$$

$$M = \left[\frac{C+D\,\Pi\,(1-P_k)}{(1-\Pi)\,P_n}\right] + (D + T) = \text{total dollar cost/sick child treated}$$

Now the cost per sick child treated can be seen to consist of the cost of pre-treatment (re-screening and diagnosis) and treatment (D+T) added to the cost of screening all children and re-screening children with the false positive test results. Since the cost D+T is independent of screening tradeoffs, only the variable screening cost will be considered, namely:

$$M_S = \frac{C+D\,\Pi(1-P_k)}{(1-\Pi)\,P_n} = \text{variable costs/sick child treated which is the ratio of total screening costs to sick children treated.}$$

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1. We make this assumption because the purpose is to address the cost/benefit of a screening program. In reality, a diagnosis is in most cases a medical opinion which implies individual interpretation of available medical data which could result in variance of diagnosis among practitioners.

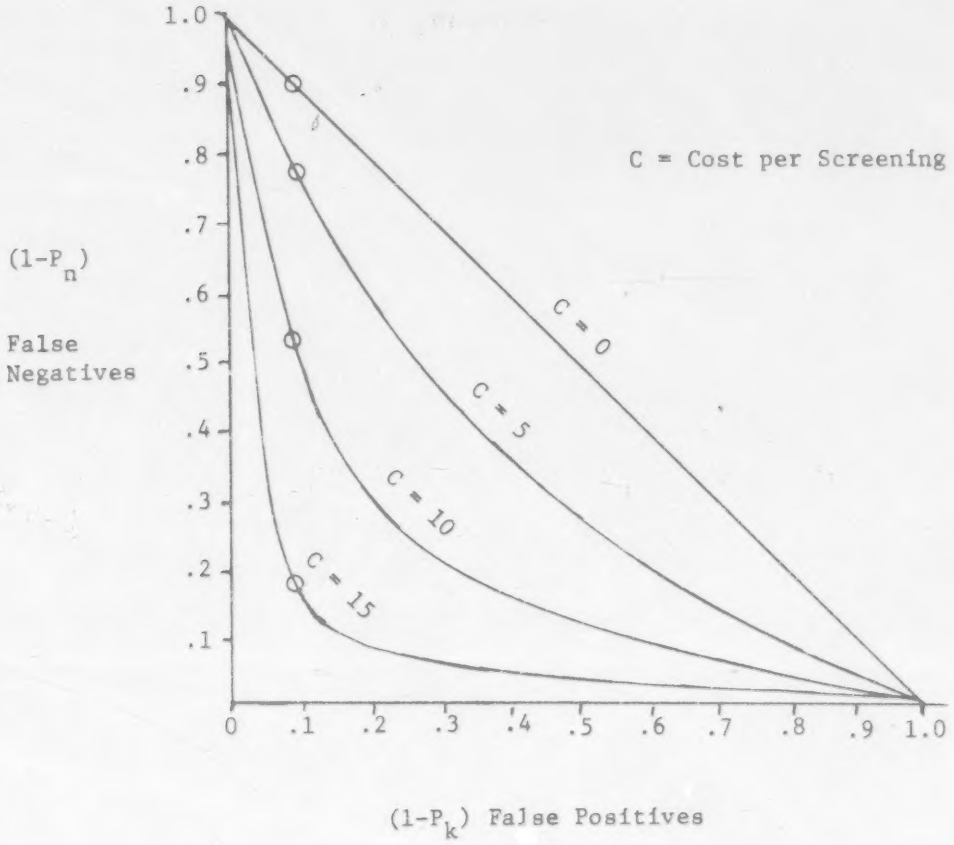

Figure F-6--Error Rates and Screening Costs: A Hypothetical Case

2. A Specific Numerical Example: Blood Tests

Health Start data show variations in both the use of hemoglobin and hematocrit tests and in the interpretation of the results of the tests. This discussion will focus on various decision options related to use of blood tests in a screening program.

For this example several assumptions have been made about the quality of the tests: (1) a hemoglobin determination done properly is not just a screen, but an accurate test for anemia.[1] However, Health Start data show wide project variations in interpreting the hemoglobin results (i.e., determing normal and abnormal readings). We make an assumption that the hemoglobin tests done in Health Start were often not done precisely (either because of lack of skill or equipment). Therefore, for the purpose of discussion here, "Health Start hemoglobin determinations" should be considered either rough screens or inaccurate tests. (2) Because of the first assumption about the quality of Health Start hemoglobin determinations, the "Health Start hematocrits" appear to be more precise tests than Health Start hemoglobin tests (possibly because they are so simple and accurate to perform). Hence, for discussion purposes, we will consider the Health Start hemoglobin a blood screening and the Health Start hematocrit the more precise test.

Three possible decisions about using blood tests in a screening program are: (1) to administer both tests to all children, (2) to give only one test (either a hemoglobin determination or a hematocrit) to all children, (3) to give two blood tests--the first as a screen and the second to verify the findings of the first test. Health Start projects did all of the above.

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1. See Head Start Health Services Rainbow Book #2.

This example is based on a case where the hemoglobin tests is used as a screening, followed by a hematocrit for all children with positive results on the hemoglobin. The model is used to demonstrate (with data from Health Start) the cost-benefit tradeoffs involving the two blood tests. First, estimates are required on the error rates and relative costs of each test. Since an independent assessment of the blood test results was not available, the error rates were estimated by using the results of one test as a standard against which the error rates of the other can be determined approximately. Second, estimates on costs are needed. The limited data on the costs of hematocrit and hemoglobin tests show that Health Start hemoglobin tests cost between $0.11 and $1.50 per child and hematocrits between $1.00 to $5.00. If a hematocrit is in fact more expensive, as the reported costs in Health Start would indicate, then its use must be justified by lower error rates. Thus, for this example, we assume that in Health Start the error rates for a hematocrit were lower and the cost higher than for a hemoglobin determination.

A cautionary note: the interpretation of the test results by Health Start projects differ slightly from the assumptions made by the evaluators to develop the numerical example. One assumption was that hematocrit values below 33 percent define sick children, and as a consequence, the threshold level for a hemoglobin test, if used, should be about 11.gr/100 ml. The interpretations reported by Health Start projects are summarized in Table F-3 which, for six categories of test results, shows the percent of children in a category who were identified as needing treatment. Both the hemoglobin and hematocrit values have a significant influence on the

TABLE F-3

PERCENT OF CHILDREN REPORTED NEEDING TREATMENT FOR VARIOUS CATEGORIES OF BLOOD TEST RESULTS IN HEALTH START (WITH ± ONE STANDARD ERROR OF ESTIMATE)

		Hemoglobin Result	
		Under 11 gm/100 ml	11 or Over gm/100 ml
Hematocrit Result	Under 32%	58% (±5%)	17% (±4%)
	32% to 34%	12% (±4%)	15% (±4%)
	Over 34%	20% (±5%)	6% (±1%)

percent reported needing treatment if one value is held constant and the other test result is allowed to vary, as is shown in Table F-3.

The results of applying the model are presented in Table F-4. Two choices could be made: (1) the hemoglobin test could be used as a screen, and if used (2) a hemoglobin threshold level could be set below which the test results will be considered positive.

The table shows the relationship between the threshold level (Column 1) and the error rates for the hemoglobin test (Columns 1 and 3). Column 4 presents the number of false negatives produced by the hemoglobin test per sick child reaching the hematocrit test. The total screening and diagnosis cost per sick child treated (Column 5) reaches a low when the hemoglobin threshold level is set at 11 gm/100 ml. (This is computed from the formula for M in the model.) However, by not using the hemoglobin test at all, the false negatives per sick child can be reduced from 0.35 to zero while only increasing the total screening and diagnosis cost per sick child treated from $20.07 to $21.30. This cost increase translates into paying $3.52 for each sick child who would not have been correctly identified (false negative) by the hemoglobin test.

TABLE F-4

RESULTS OF EXERCISING MODEL FOR HEMOGLOBIN SCREENING

Hemoglobin Threshold Level (gm/100 ml) (1)	Estimated Error Rates For Hemoglobin Test: False Positive ($1-P_k$) (2)	Estimated Error Rates For Hemoglobin Test: False Negative ($1-P_n$) (3)	False Negatives Per Sick Child Treated (4)	Total Screening and Diagnosis Cost Per Sick Child Treated (5)	Cost of a Hemoglobin Test Above Which It Is Not Advantageous To Use The Test (6)
10	1%	67%	2.0	$35.60	$ 0.81
11	9%	26%	.35	$20.07	$ 1.62
12	42%	4%	.04	$22.35	$ 1.35
13	78%	1%	.01	$27.76	$ 0.54
14	95%	0%	.00	$30.64	$ 0.09
Test Not Used	-	-	0	$21.30	-

Key Assumptions:

Cost of Hemoglobin Test = $1.50/Child
Cost of Hematocrit and Diagnosis = $3.00/Child
Percent of Population really sick = 15%

The last column (6) of Table F-4 presents the cost of a hemoglobin test above which it is never advantageous to use the test (under the assumptions made above). This is the amount at which the total screening and diagnosis cost per sick child treated using a hemoglobin test would be equal to the cost when the hemoglobin test was not used. (This is shown in the bottom row of the table.) This does not account for any additional amount that one would be willing to pay to avoid false negatives (which was assumed above to be at least $3.52 per each false negative avoided. This "cost" of false negatives translates into a "breakeven" cost of $1.35 per hemoglobin test rather than $1.62 calculated under the assumption of no value placed on false negatives. Since for the example the assumed cost of a hemoglobin

test was $1.50 the "breakeven" cost for a hemoglobin test is either above the assumed cost if a dollar value is placed on false negatives or below the assumed cost. From the example, one can conclude that a hemoglobin test of the average quality found in Health Start is cost-effective to use only if its cost per child is no more than one-half the cost of a hematocrit.

3. More General Numerical Examples

Three numerical examples have been computed with assumptions as follows:

EXAMPLE NUMBER AND FIGURE	FRACTION OF WELL CHILDREN Π	COST OF DIAGNOSIS D
Figure IV-7	0.9	$20
Figure IV-8	0.5	$20
Figure IV-9	0.9	$50

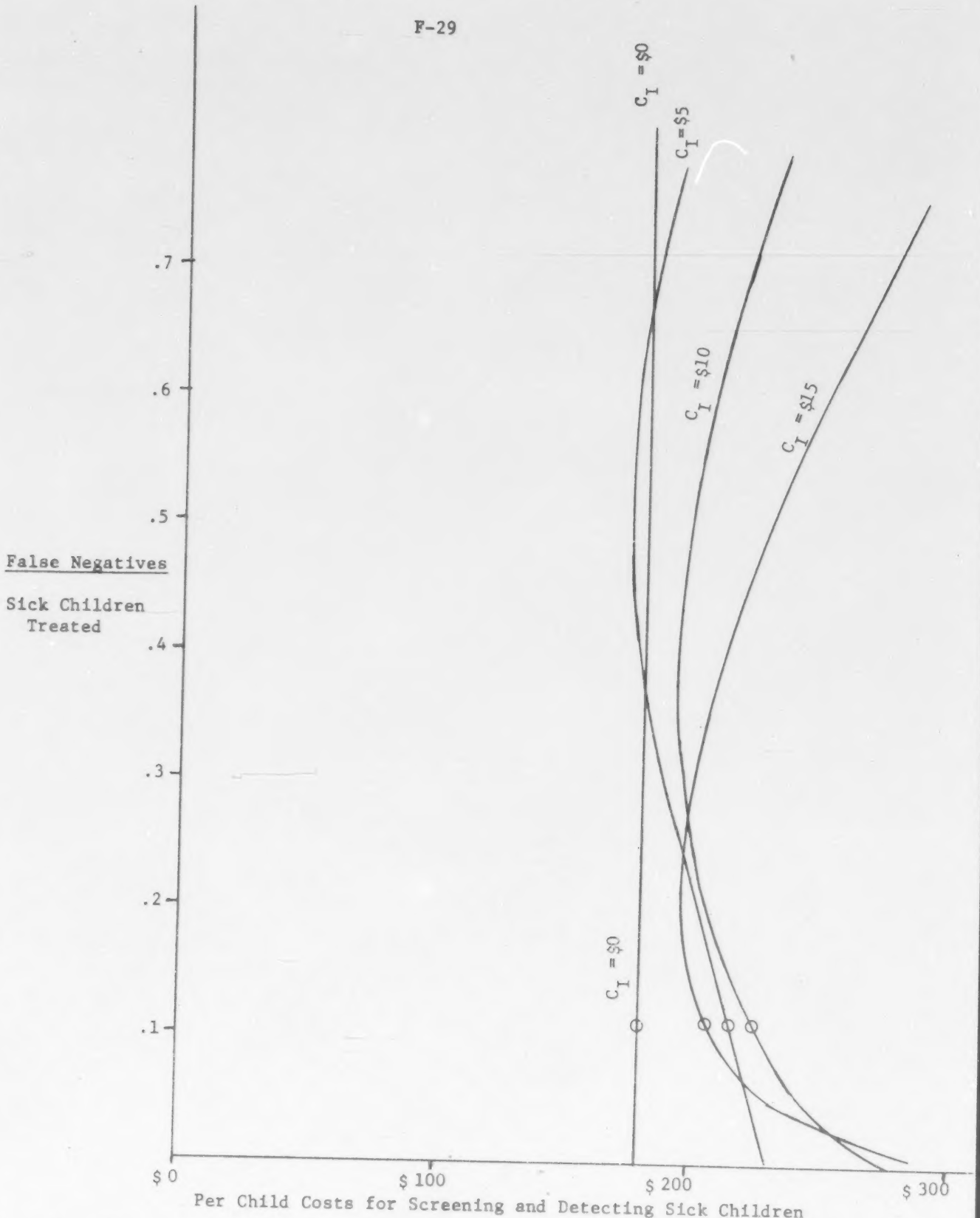
The three examples show, for various screening tests, the possible false negatives and screening cost per sick child treated. These examples bracket the ranges found in the Health Start data.[1] Suppose the false negative rate is held constant at 0.1 as shown for the four small circled points in

1. The parameter values for these examples were established to reflect the range of conditions found in Health Start data. For example, the fraction of screened children needing dental treatment is 0.5 (corresponding to Π = 1-0.5 = 0.5 in Figure F-9). However, on the average, a Health Start screening test had about 10 percent chance of producing an abnormal result (corresponding to Π = 1-0.1 = 09 in Figures F-7 and F-8). The average cost of a dental exam was $11.50 and projects reported a range of costs for dental exams from $1.00 a child to $26.00 a child. (The latter amount probably includes more than dental screening, e.g., X-rays.) The average cost of the various screening tests ranged from $2.00 to $11.50.

Figure F-6. By increasing the cost per screening from $0 to $15, the false positive rate decreases from 0.9 to 0.17, and the false negatives per sick child treated are constant at 0.11. The variable screening cost per sick child treated is shown in Figure F-8 at the four circled points. In this case more expensive screening tests result in decreased total screening costs per sick child treated. However, for the conditions assumed for Figures F-7 and F-8, the variable screening cost per sick child treated generally increases for more expensive screening tests.

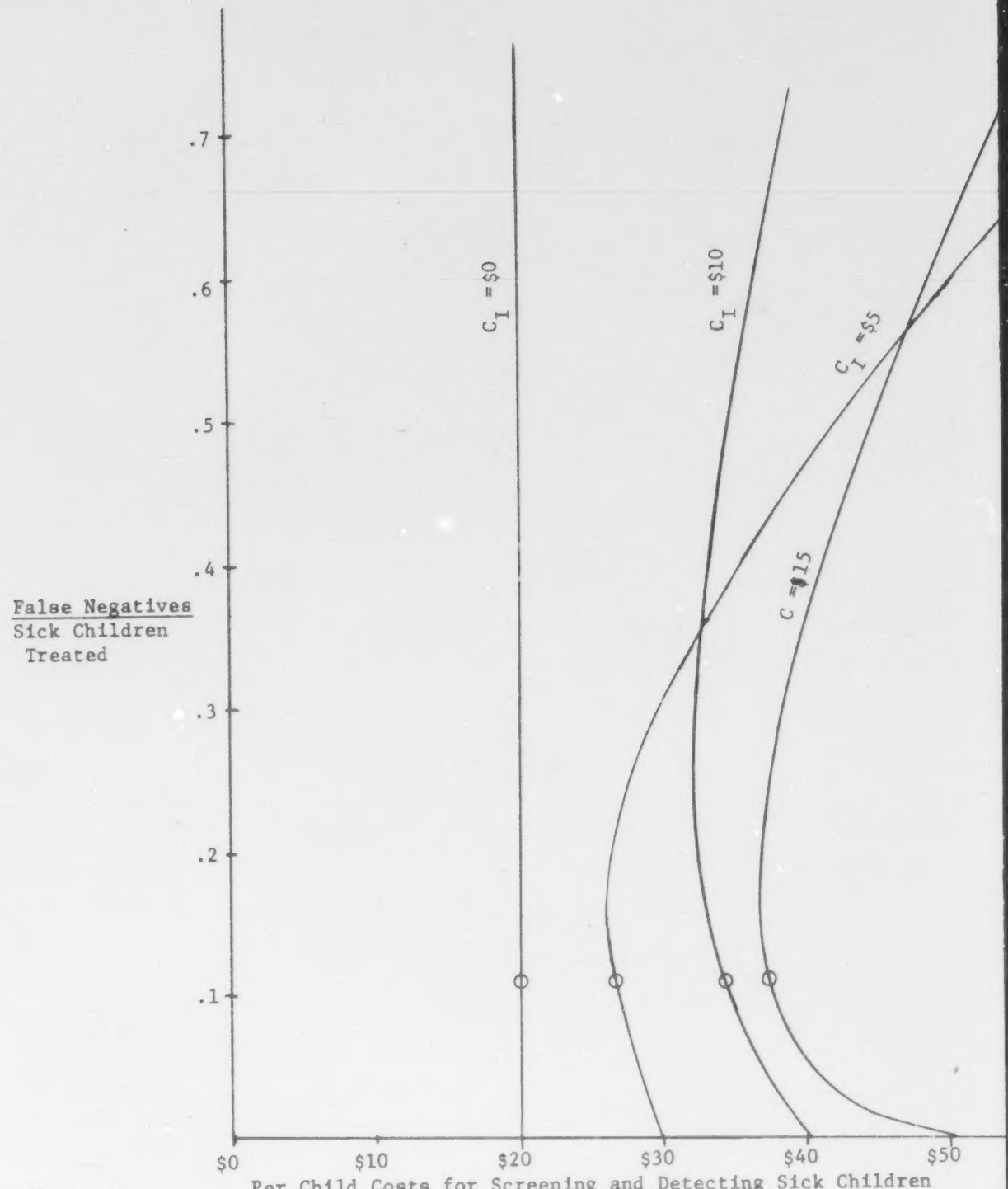
Now suppose the unit screening cost (C) is held constant and the consequences of moving the threshold level in the screening test (see Figure F-6) are explored. By decreasing the false negative rate, the number of false negatives per sick child is reduced, but at low levels this causes an increase in the total screening costs per sick child treated.

Figure F-9 can be considered a base case for the example. An assumed 90 percent of all children screened are not in need of treatment and diagnostic costs are $20 per child. Expending more money for lower error rates in screening does not generally decrease costs. In Figure F-8 the diagnostic costs are increased to $50 per child, and other parameters are the same as for Figure F-9. In Figure F-9 the conditions are favorable for increasing money spent on screening, which decreases screening errors enough to result in lower total costs. The assumed parameters for Figure F-9 are similar to Figure F-8 except that the percent of children not needing treatment has decreased from 90 percent to 50 percent. In this case, money spent on better screening tests results in higher total cost of the health program.



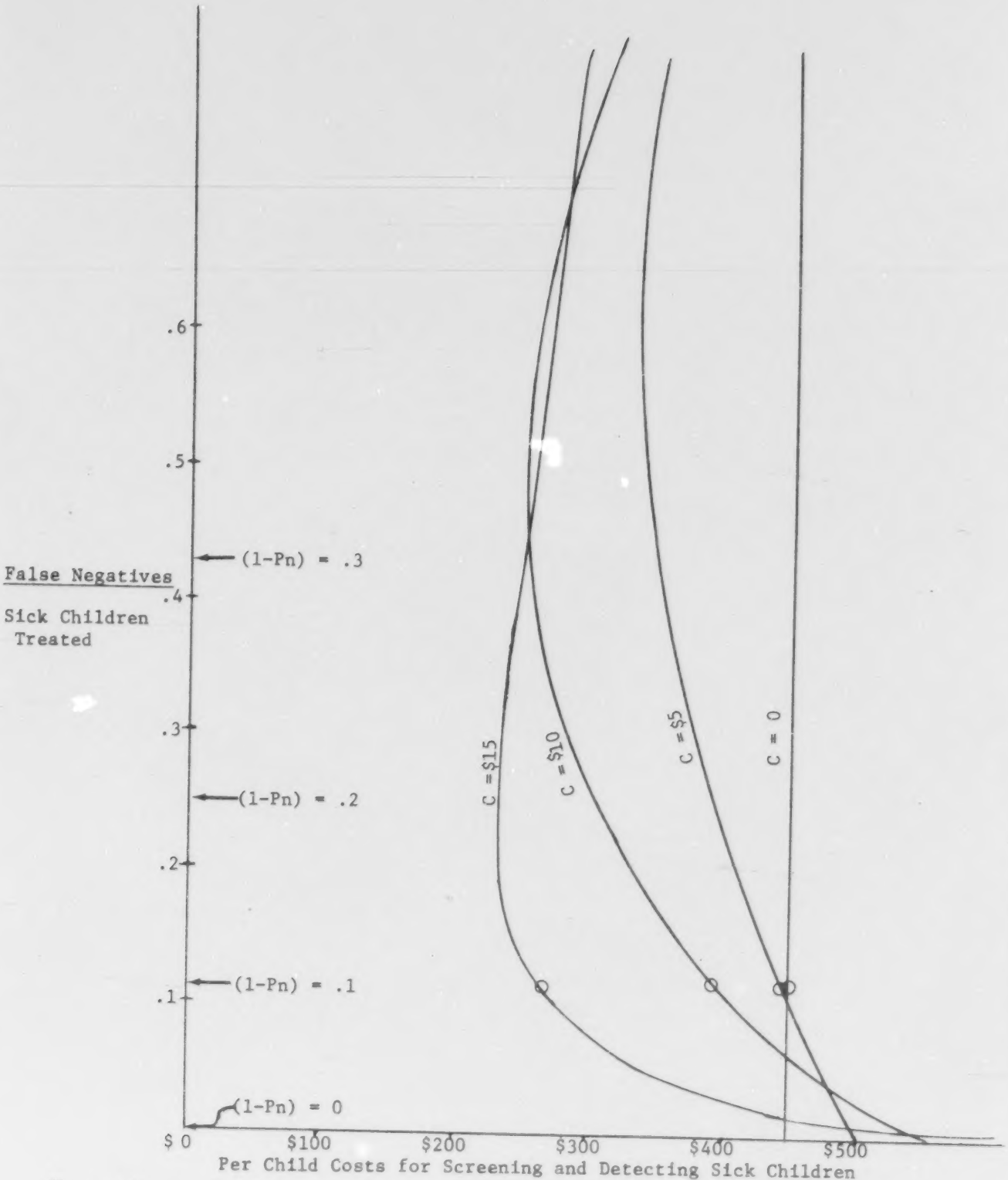
Π = .90
D= $20

Figure F-7 — Total Screening Costs/Sick Children Treated



Π = .50
D = $20

Figure F-8--Variable Screening Costs/Sick Children Treated



Π = .90
D = $50

Figure F-9--Variable Screening Costs/Sick Children Treated

F. Conclusions

As can be seen, determining the conditions under which screening is cost/effective is not a simple process. Only with the proper combination of (1) high cost of diagnosis, (2) low percent of children needing treatment, and (3) rapid decrease in screening error rates per increase in screening costs is it better to utilize a screening procedure. Under such conditions, there is a substantial tradeoff between false negatives and total screening costs per sick child treated. This tradeoff can be achieved by varying the threshold level of the screening test.

Data of this type were not used for the development of the Health Start screening program. The above conclusions suggest that obtaining such data on the tradeoffs would have a very great payoff and should be of high priority for agencies and organizations involved in delivering health services to preschool children. Such evaluation suggests that an appropriate HEW agency invest funds in research to obtain the necessary data for obtaining a better understanding of these tradeoffs than now exists. This would not only benefit a program like Head Start but also the MCH and the Title XIX--Early Periodic Screening, Diagnosis and Treatment programs.

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